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LOWER GWYNNS FALLS/ MIDDLE BRANCH MANAGEMENT PLAN:

Phase I of the Middle Branch Waterfront Plan

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Prepared by:

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City of Baltimore
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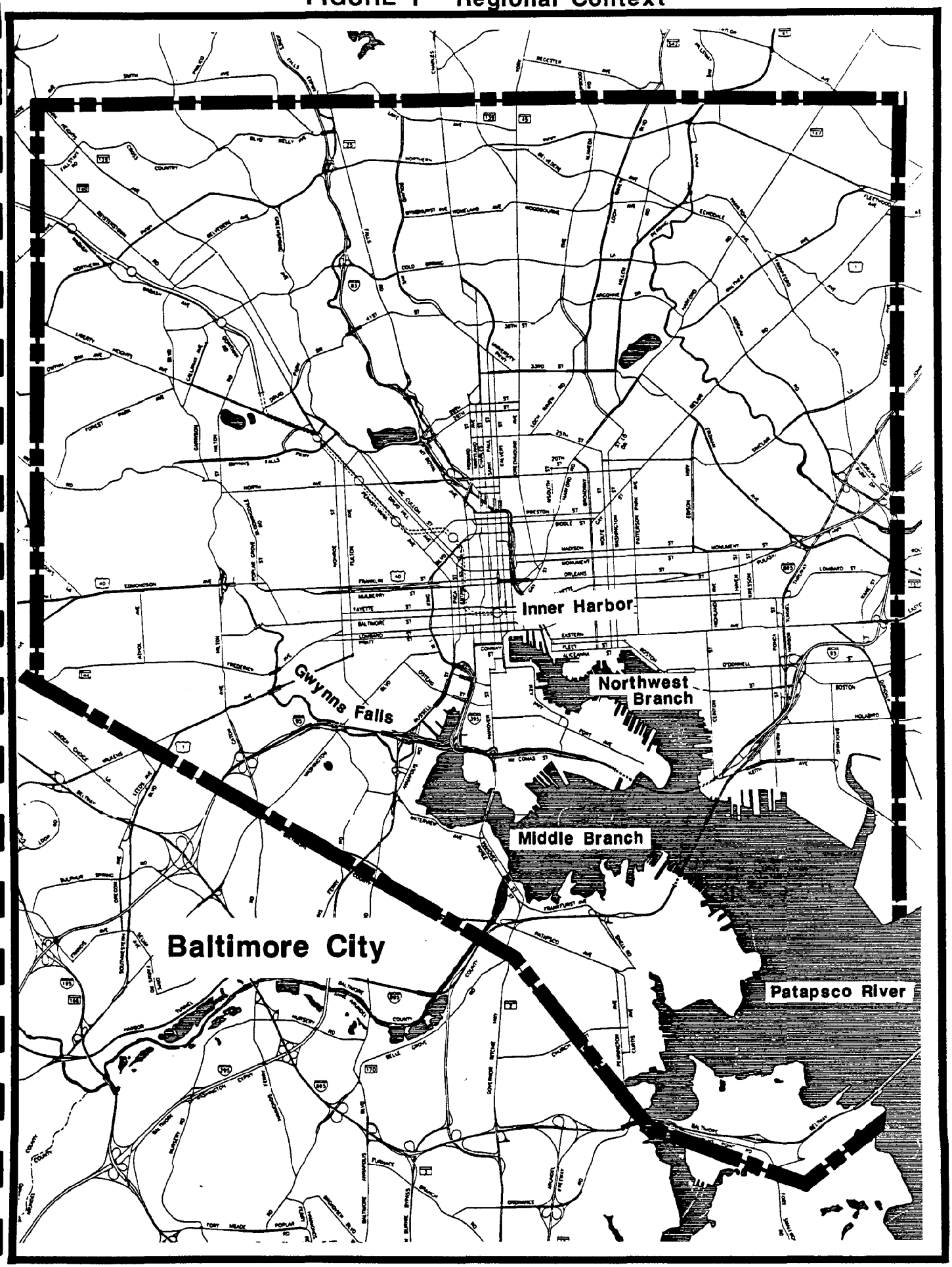
INTRODUCTION

The Middle Branch of the Patapsco River, its shorelines, and its main tributary, the Gwynns Falls, have been forgotten treasures in Baltimore. The area was once considered the likely location for the expansion of downtown, but that never materialized. By the early seventies, the Middle Branch had become an industrial backwater. Junk yards littered its shores. Even the factories turned their backs to the water when the channel was no longer navigable.

In spite of this degraded condition, the value of the Middle Branch has been rediscovered. Less than a mile from the Inner Harbor, the Middle Branch is a rich natural area with beautiful wetlands and waterfowl. The Middle Branch also is a prime development area of undeveloped or underdeveloped parcels with quick access to downtown and the Interstate system.

The confluence of governmental and private market activities make this a critical and opportune time to plan for the Middle Branch. The State Critical Area Protection Laws and the Baltimore City local program target the Middle Branch as a priority location for protection and enhancement of existing natural resources. The non-tidal wetlands protection laws and expected federal regulation of storm water outfalls heighten the possibilities for improving water quality and habitat. The Middle Branch Park Plan of 1978 has resulted in the improvement of the shoreline, creation of water-oriented recreation, and establishment of a waterfront trail system. Private development projects which will change the prospects for the Middle Branch include the Port Covington Business Park, a 1.5 million square foot office

FIGURE 1 - Regional Context



development; the Central Light Rail System; the new baseball stadium; and the future football stadium.

The Department of Planning is studying the Middle Branch to prepare a strategy for reclamation and redevelopment the Middle Branch and Gwynns Falls shorelines. The goals and objectives for this strategy are listed later in the introduction of this report. Generally stated, the goal is to significantly improve environmental conditions while strengthening opportunities for recreation, access to the waterfront, and industrial development outside the Critical Area buffer.

The establishment of a greenway down the Gwynns Falls and around the Middle Branch is a central element of the overall strategy. The greenway promotes the ideas of the current and previous Middle Branch plans which are to renew and enhance the stream valley parks and to multiply the area's habitat and recreational value. The greenway can accomplish this in several ways:

* Conserving natural resources.
* Protecting habitat and water quality.
* Appropriately using the Critical Area buffer.
* Creating access to open space close to population centers.
* Providing a variety of recreational opportunities.
* Increasing public awareness of the natural environment.
* Linking the waterfront to new development projects and existing population centers.

This report presents the Planning Department's preliminary recommendations for establishment of a Middle Branch/Gwynns Falls greenway. It summarizes some of the analysis that has been prepared as

part of the Middle Branch planning process. Specifically, information is presented on the history, existing conditions and trends of the area's natural environment, land use, and inclusion in past park plans. The study area was divided into six sub-areas to get at the specific issues facing a Middle Branch greenway system. This report concludes by presenting the problems/opportunities and recommended actions by sub-area.

Goals and Objectives

The following goals and objectives were developed to guide the preparation of the Middle Branch strategy and the Greenway Plan:

Goal 1: Revitalize the Middle Branch as a unique area combining restored and enhanced natural environment, recreation and compatible industrial and mixed use development.

Objectives

1. Protect and Enhance Existing Water Quality and the Natural Environment.

   -Create habitat restoration opportunities

   -Require to the maximum extent possible on site, fulfillment of the Critical Area Criteria for new development.

   -Minimize the impact of environmentally incompatible uses.

2. Capitalize on the natural setting, waterfront and recreational amenities for appropriate development.

   -Create open space amenities for existing and new development that would provide both active and passive recreation opportunities.

   -Enhance the natural beauty of the water's edge.

   -Promote the area for development that will appreciate and support the natural shoreline edge.

   -Balance development and public access with environmental protection and enhancement.

3. Guide and manage growth related to Light Rail and the Stadium Complex.

   -Encourage stadium- and light rail-related development, by guiding new investment to appropriate areas.

   -Control the impacts of speculation on the area.

4. Encourage employment-intensive and tax-producing development within identified opportunity areas.

   -Identify opportunities for new or expanded employment generating activities.

   -Develop a reuse strategy for outdated industrial buildings, where appropriate.

Goal 2: Optimize Federal, State and Private Investment and Its Positive Effects on the Development of the Area.

Objectives

1. Facilitate the Use of Light Rail and Optimize its positive impacts on the Area.

2. Employ joint use parking where possible with football stadium.

Goal 3: Better Integrate the Middle Branch Waterfront with Surrounding Communities, Park Systems and the Inner Harbor.

Objectives

1. Increase compatibility of industrial uses to residential areas.

2. Create clear connections between various uses from residential to industrial or recreational.

   -create pedestrian links for residential to office/ industrial and to recreation uses

   -improve visual clues to guide visitors to and through the area, both pedestrian and vehicular

3. Improve the relationship of the area to Downtown.

   -Strengthen the Eutaw Street/Stadium pedestrian connection.

   -Visually improve Russell Street as a gateway to downtown.

4. Integrate the Stadium complex into the Middle Branch area.

   -Develop pedestrian connections to the waterfront and the surrounding communities, where desirable.

   -Integrate football stadium parking needs into the development strategy for the area.

5. Develop pedestrian/bike trails/wildlife corridors to link the Middle Branch with Gwynns Falls/Leakin Park and Patapsco Valley State Park.

Goal 4: Develop a strategy to guide development in the area.

Objectives

1. Balance diverse needs and interests.

2. Prepare an action/implementation plan to guide growth in the area.

The Study Area

The Middle Branch is located at the mouth of the Gwynns Falls in South Baltimore. The study area includes lands adjacent to these two bodies of water, extending landward as shown in figure __. The area extends counter clockwise from Port Covington, around the Middle Branch to the Patapsco River at the Hanover and Potee Street bridges. The Gwynns Falls component of the study area extends from the Middle Branch upstream to Route 40 and Leakin Park. The three most pronounced landscape features which dominate the area are the configuration of the shoreline and streambed, the intricate system of bridges forming I-95 and I-395, and the beautiful arches of Hanover Street Bridge which can be seen from many vantage points.

The Middle Branch/Gwynns Falls area has been divided into 6 sub-areas for purposes of study (figure__). Each of these areas is unique in its character and the problems and opportunities which have been explored.

FIGURE 2 – Study Area

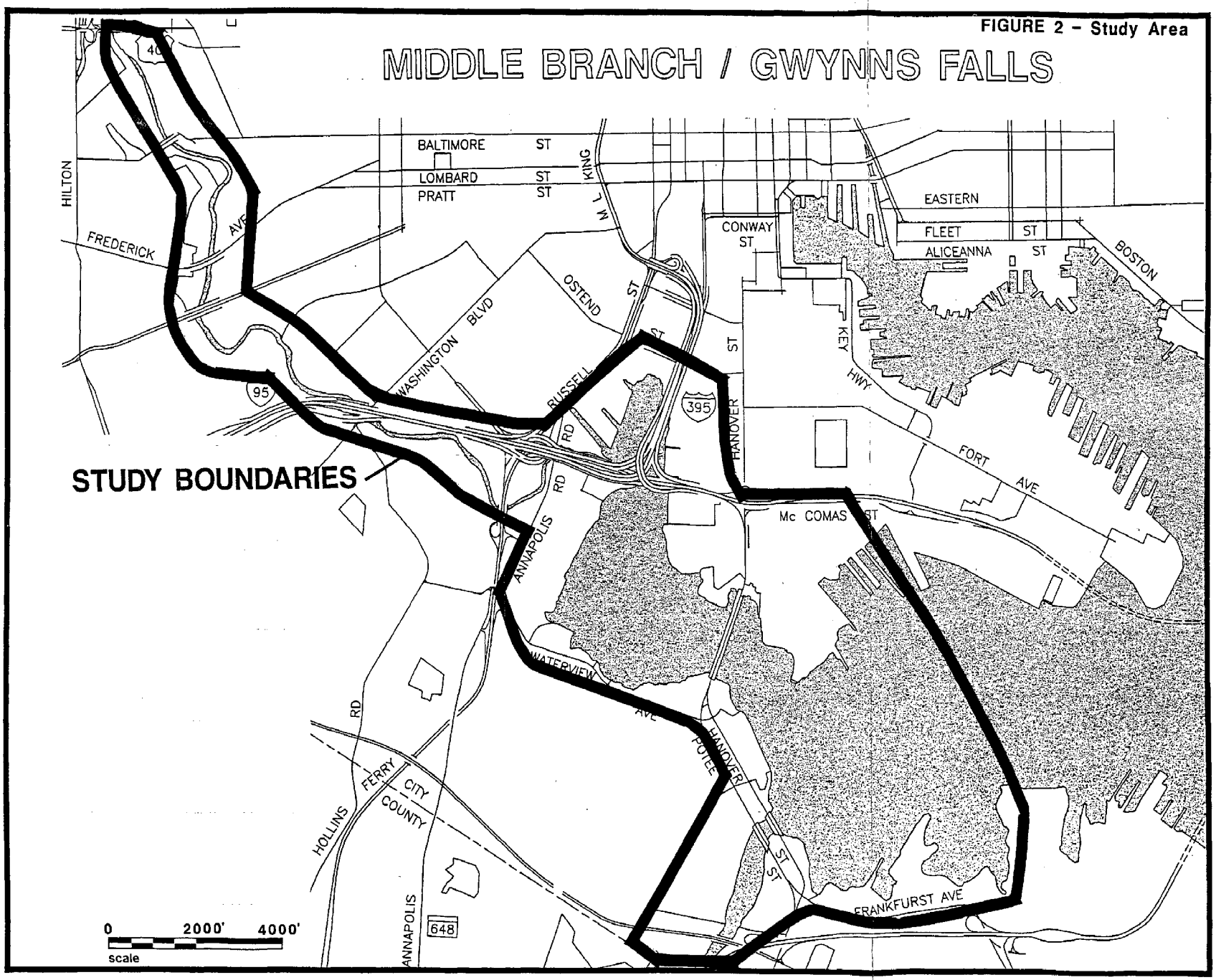
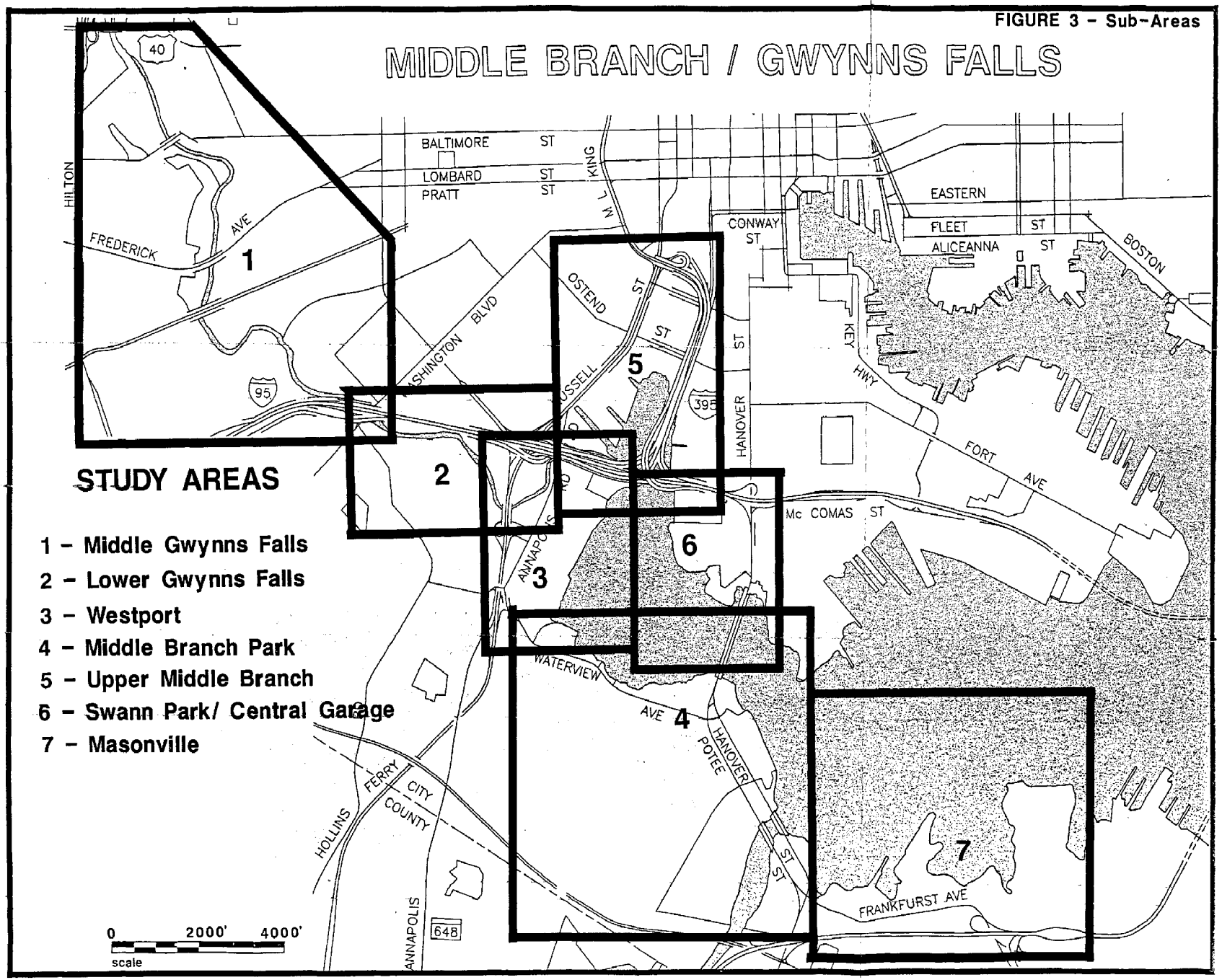


FIGURE 3 - Sub-Areas



The Middle Gwynns Falls sub-area consists of a rocky freshwater stream with dramatic scenic quality in some parts of its reach. Adjoining land uses range from open space vegetated with a mature oak forest to heavy industrial lands.

The Lower Gwynns Falls is dominated by I-95 which bisects the area. Land uses range from open space to heavy industry.

Westport consists of a residential community and shoreline industries bounded by heavily traveled traffic routes.

Middle Branch Park has extensive amounts of open space adjacent to residential and commercial areas.

Upper Middle Branch has extensive acres of wetlands, with an intricate pattern of highway butresses arching overhead. The adjacent land includes industry and private undeveloped parcels. The area extends northward to the proposed stadium.

Swann Park/Central Garage includes these two parcels as well as CSX-owned industrial land used for storage, and open space.

Each study area has been mapped and examined separately, with an effort to look at issues in the overall context of the area.

PHYSICAL DEVELOPMENT

Development History

The Middle Branch was a very active part of the Baltimore Harbor until the end of the 19th century. Harbor activities originally extended farther inland. John Smith had navigated seven miles upstream on the Patapsco River, and Elkridge Landing was a port town before silt from colonial farming filled in the Lower Patapsco. In the Middle Branch, the Bush and Bayard Street docks were vital parts of the working port, and brick kilns and foundries were already established on the western shore. The heavy industrial character of the Middle Branch early on probably helped steer residential and commercial development to the Inner Harbor basin.

Recreation was always part of the Middle Branch. Boating activities, beaches and restaurants offered a respite from the urban life downtown. However as the urban pattern of Baltimore evolved in the 18th and 19th centuries, apparently little priority was given to planning for public access to the harbor or streams in this area. The land use pattern around the harbor was driven by commerce and industry and their need for access to water and rail transportation. As a result, at the beginning of the 20th century, the entire waterfront of the Middle Branch and the lower Gwynns Falls was zoned for industrial use.

Over the years, several studies have looked at the role of the Middle Branch in the Port of Baltimore. A Regional Planning Council study (1973) recommended redevelopment of the Middle Branch to correct pollution problems. This included filling or dredging the water body to get greater flushing, cleaning up industrial pollution, and

installing sediment catch basins at the mouth of the Gwynns Falls and Patapsco Rivers. Renovation of Port Covington for increased cargo handling and private redevelopment for Masonville also were suggested.

In 1975, the Baltimore Harbor Plan recommended higher environmental quality standards as well as long term goals for economic development and public access. The 1985 Baltimore Harbor book followed this up with concept plans for the development of Middle Branch Park and the redevelopment of Port Covington for non-port uses. By 1978, Masonville had been purchased by the Maryland Port Administration for future expansion of the port.

Land Use

Industrial land uses predominate the Middle Branch (Figures 4A-4F). Light and heavy manufacturing, wholesaling, utility operations, and construction firms are the most common types of industry in the study area. There also are nine significant vacant or underutilized parcels in the study area. These cover about 85 acres of land.

Other minor land uses include, retail, institutional (Hospital), and several public buildings.

The Middle Branch Park area consists primarily of the park itself and the Waterview Industrial area which houses one major wholesaler (The Zomoiski Company) and about fifteen small businesses.

Westport is primarily industrial on the waterfront. The uses are a concrete batching plant, the Carr-Lowry Glass manufacturing plant, and the BG&E Westport electrical power plant.

The Upper Middle Branch (West) includes the Carroll Industrial Park, an industrial neighborhood of relatively small industries

FIGURE 4A - Landuse & Zoning

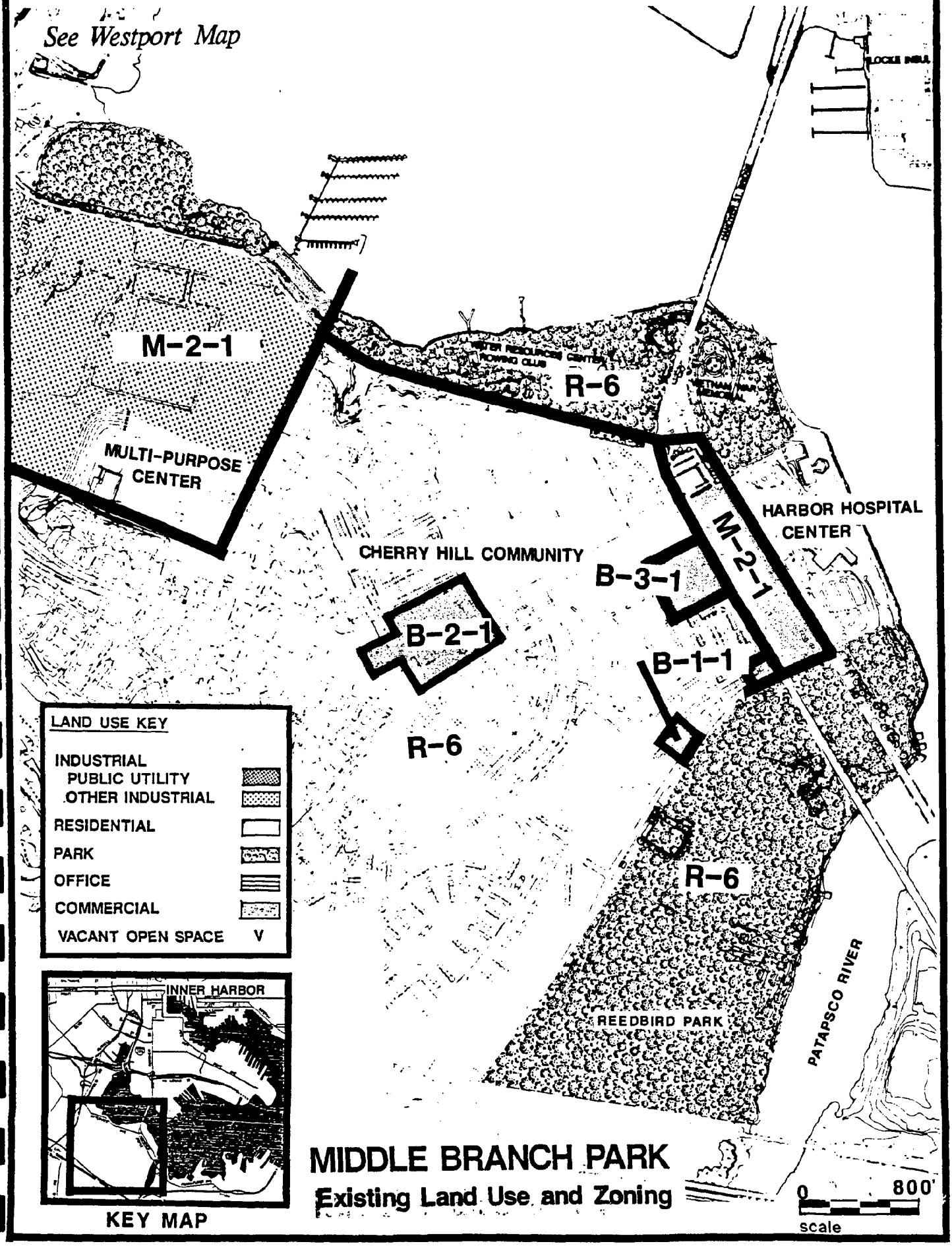


FIGURE 4B - Landuse & Zoning

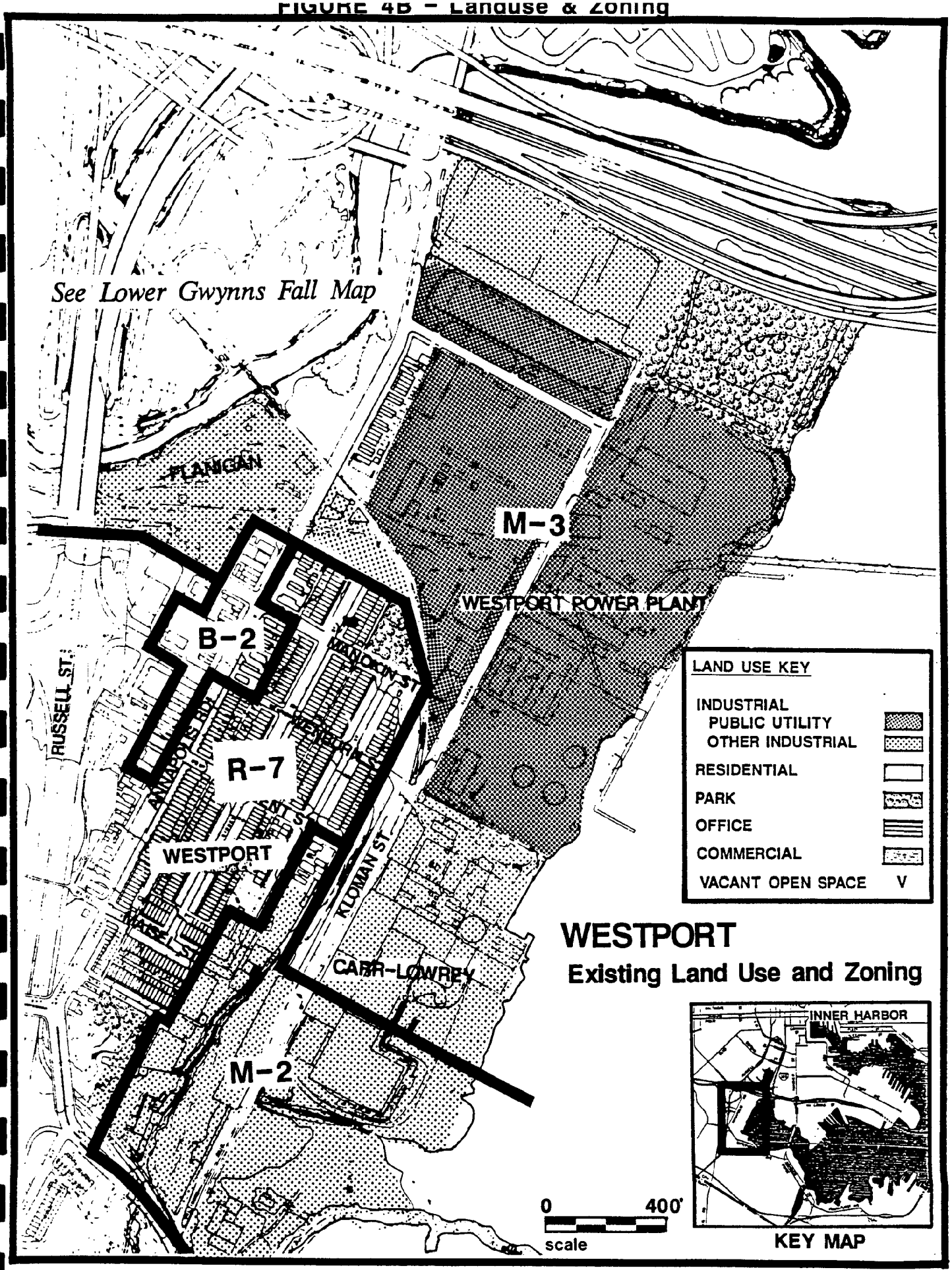
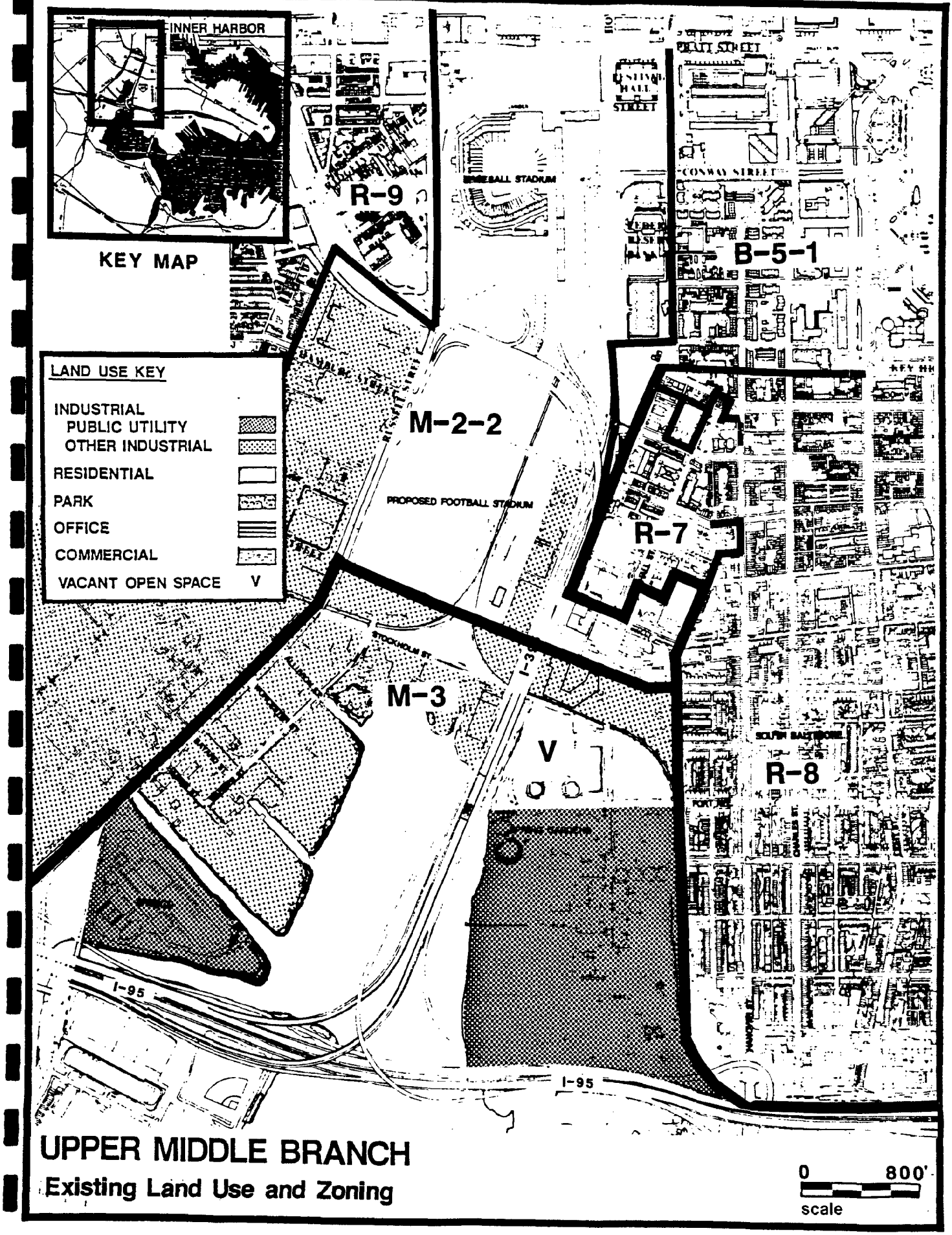


FIGURE 4C - Landuse & Zoning



UPPER MIDDLE BRANCH

Existing Land Use and Zoning

0 800'

scale

Figure 4D - Landuse & Zoning

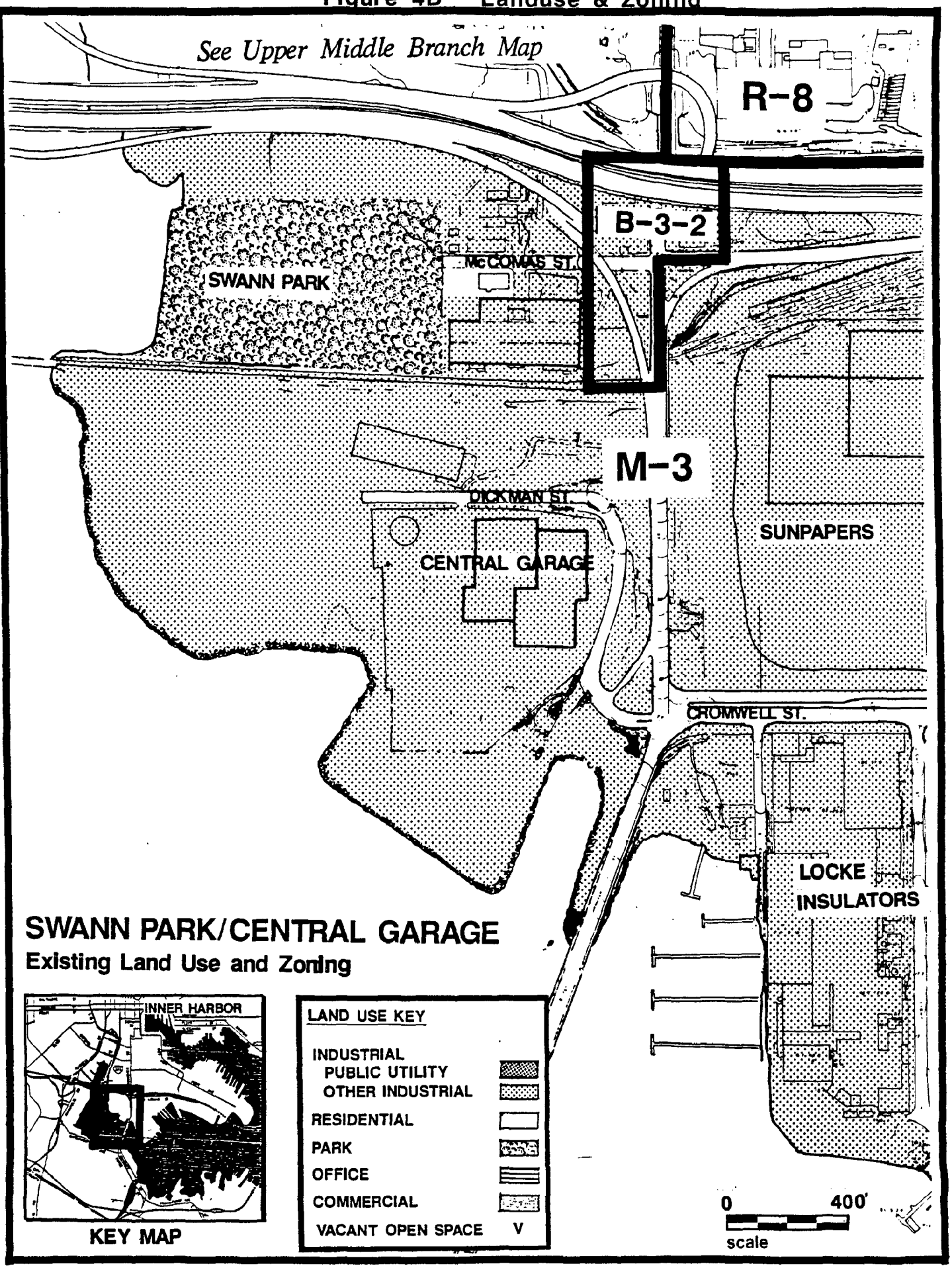


FIGURE 4E - Landuse & Zoning

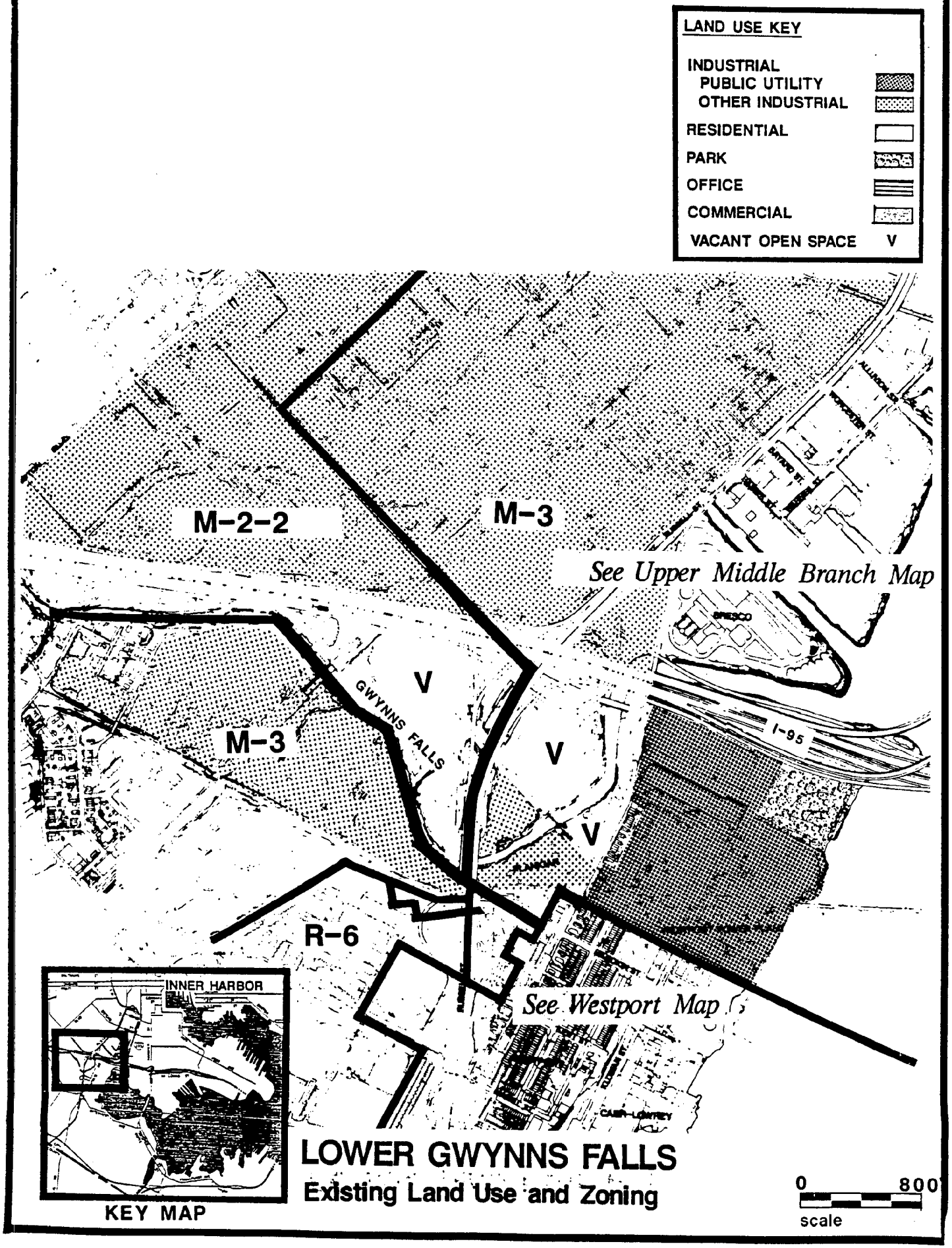
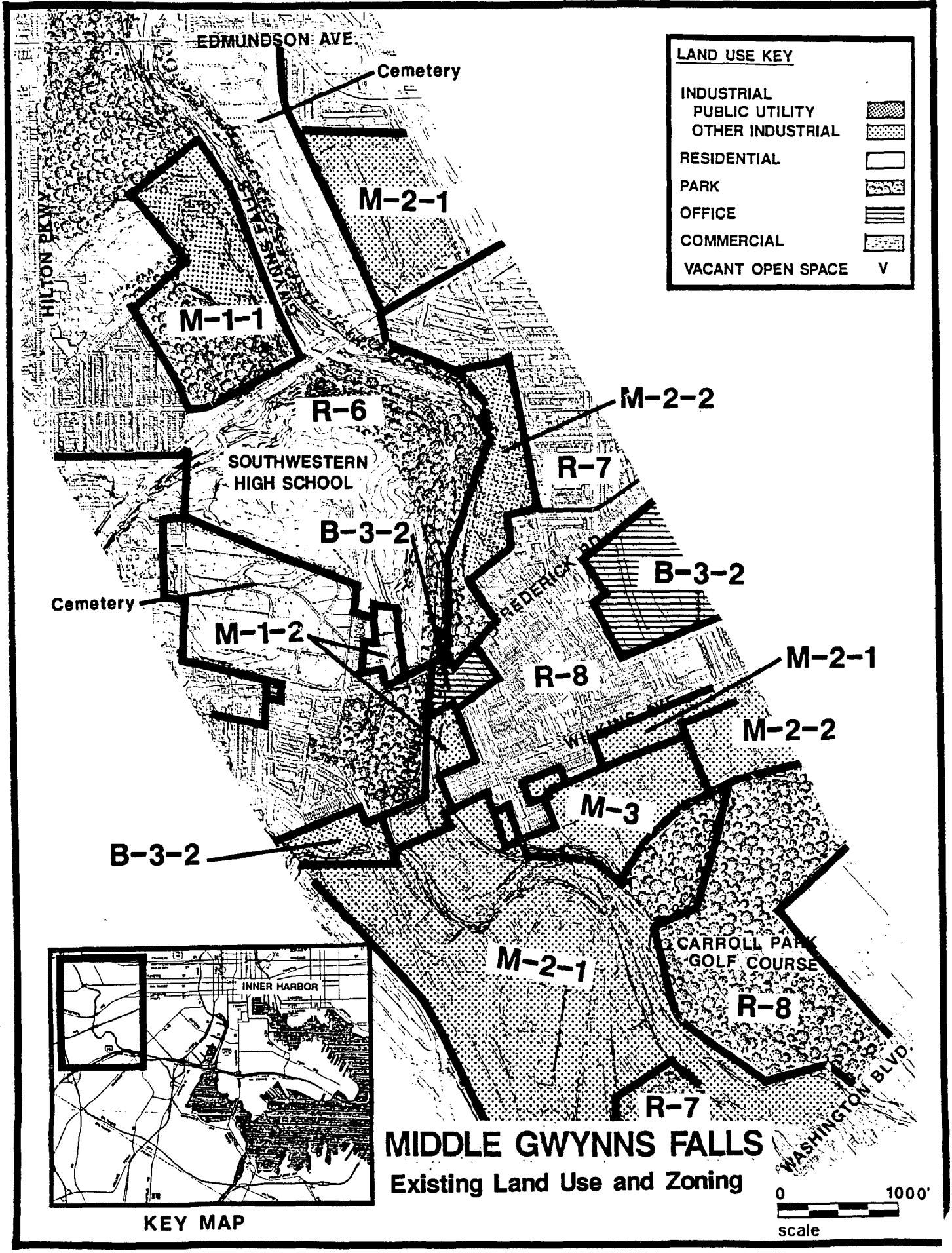


FIGURE 4F - Landuse & Zoning



including many employment-intensive light manufacturers. The planned stadium complex borders this area. When complete, the stadium will bring new visibility to the entire study area. Several waterfront parcels south of the stadium are currently vacant or underutilized.

Upper Middle Branch (East) is dominated by the BG&E Spring Gardens facility which is used primarily to store, liquify, and distribute natural gas. North of Spring Gardens is the Ostend Industrial Area which houses a number of light manufacturing, wholesaling and service businesses.

Swann Park/Central Garage borders on the Port Covington Business Park (now under construction) and Locke Insulator which is a large ceramic insulator manufacturer located on the waterfront directly west of Port Covington. West of Hanover Street is the City's Central Garage, a large vehicle maintenance center; a 20-acre parcel owned by CSX and used by a lumber company; and Swann Park, a waterfront park with ball fields.

The Lower Gwynns Falls area is bisected by the Gwynns Falls. The area is primarily highway right-of-way and flood plain on the north and heavy industry on the south. The Southgate Industrial Park, now under development, is the largest industrial parcel.

Masonville includes two major industrial tracts - the Arundel Corporation's concrete batching plant and the MPA Masonville property. The latter is partly vacant and partly used for an auto import facility.

Zoning

The majority of the Middle Branch area is zoned M-2 or M-3 for moderate to heavy industry (Figures 4A-4F).

M-3 zoning, in particular, is quite permissive. In a number of the sub-areas the industrial zoning poses potential conflicts with environmental objectives. Residential zones along the shoreline include the Middle Branch Park, Reedbird Park, and Harbor Hospital.

Ownership

Most of the study area is in private ownership. (Figures 5A-5F) The majority of the businesses own their facilities; a few of them lease.

City- and State-owned land includes:

-parks (Middle Branch, Swann Park, Reedbird, Ferry Bar Park)

-Floodplain acquisition parcels in the lower Gwynns Falls

-Highway rights-of-way

-Public facilities (Animal Shelter, Central garage)

-Maryland Port Administration land.

LAND USE SUMMARY

Type Use	#Firms	#Employees	#Acres
Industrial			
Construction	9	464	30
Manufacturing	44	3,264	135
Business Services and Health Services	22	2,110	40
Transportation	10	267	29
Utilities	5	232	180
Wholesaling	33	1,251	170
Warehousing	3	0	10
Marinas	2	4	10
Public Facilities	3	170	31
Retail	14	110	21
Park	5	-	135
Vacant	9		85

FIGURE 5A - Neighborhoods & Ownership

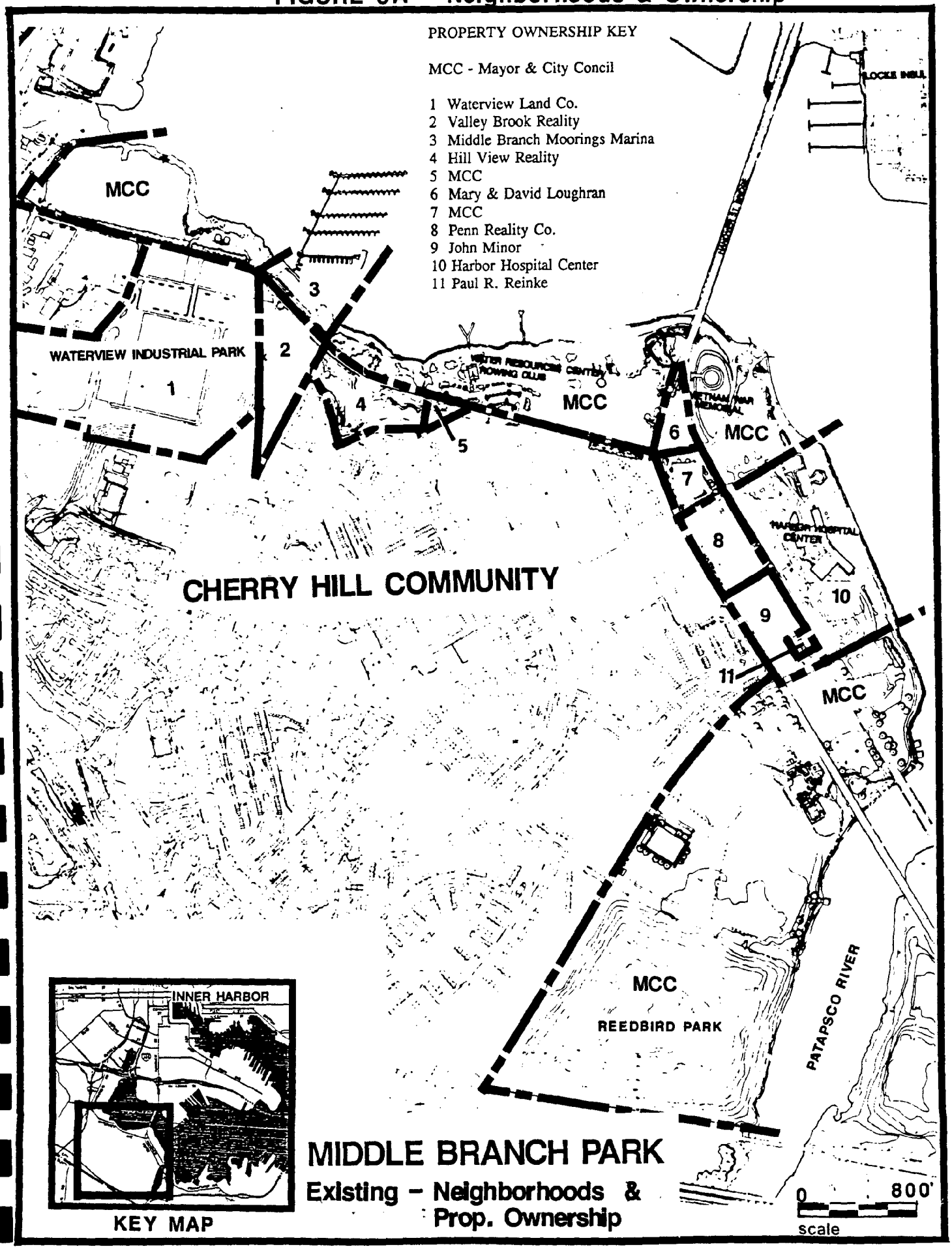


FIGURE 5B - Neighborhoods & Ownership

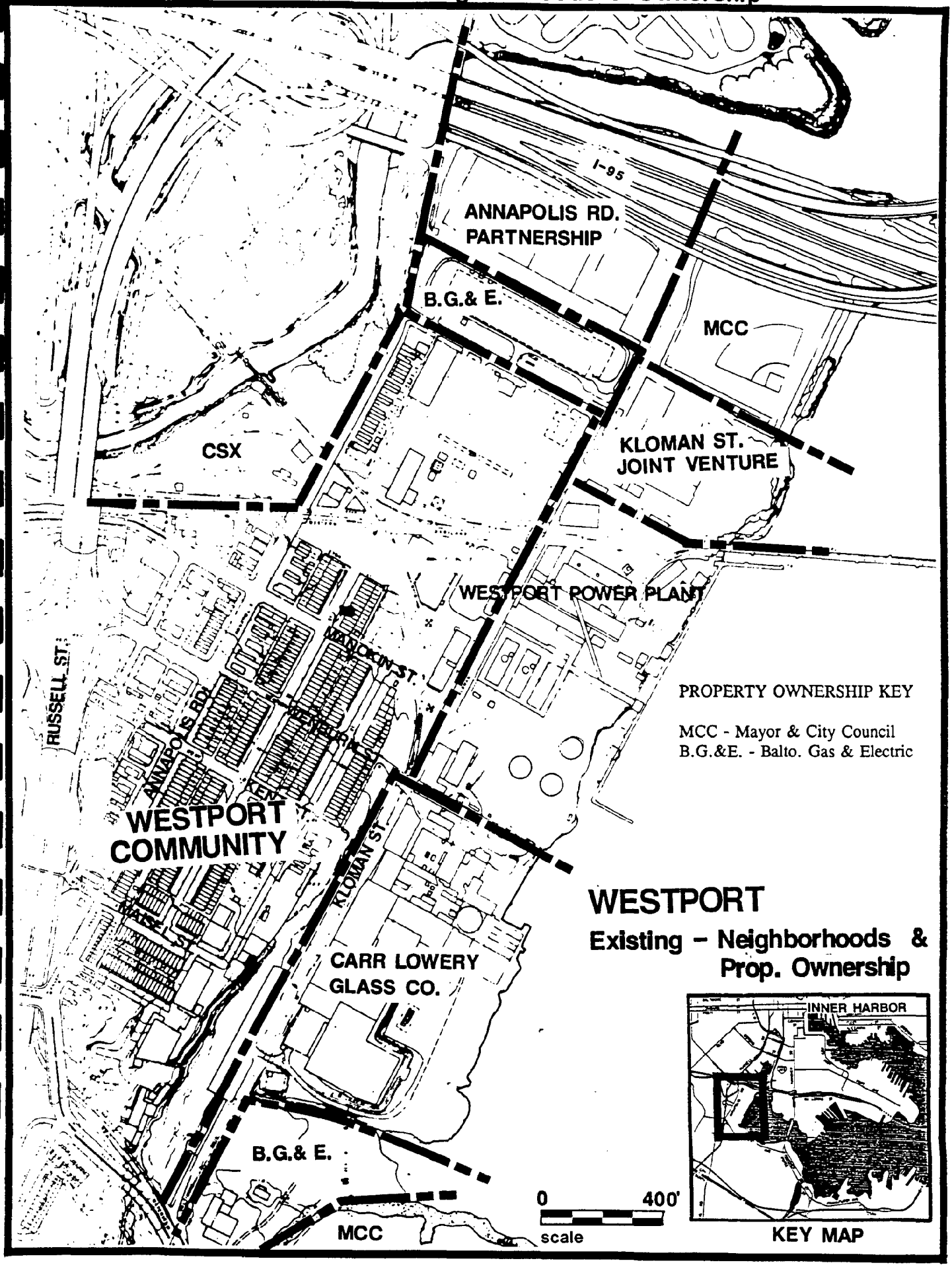
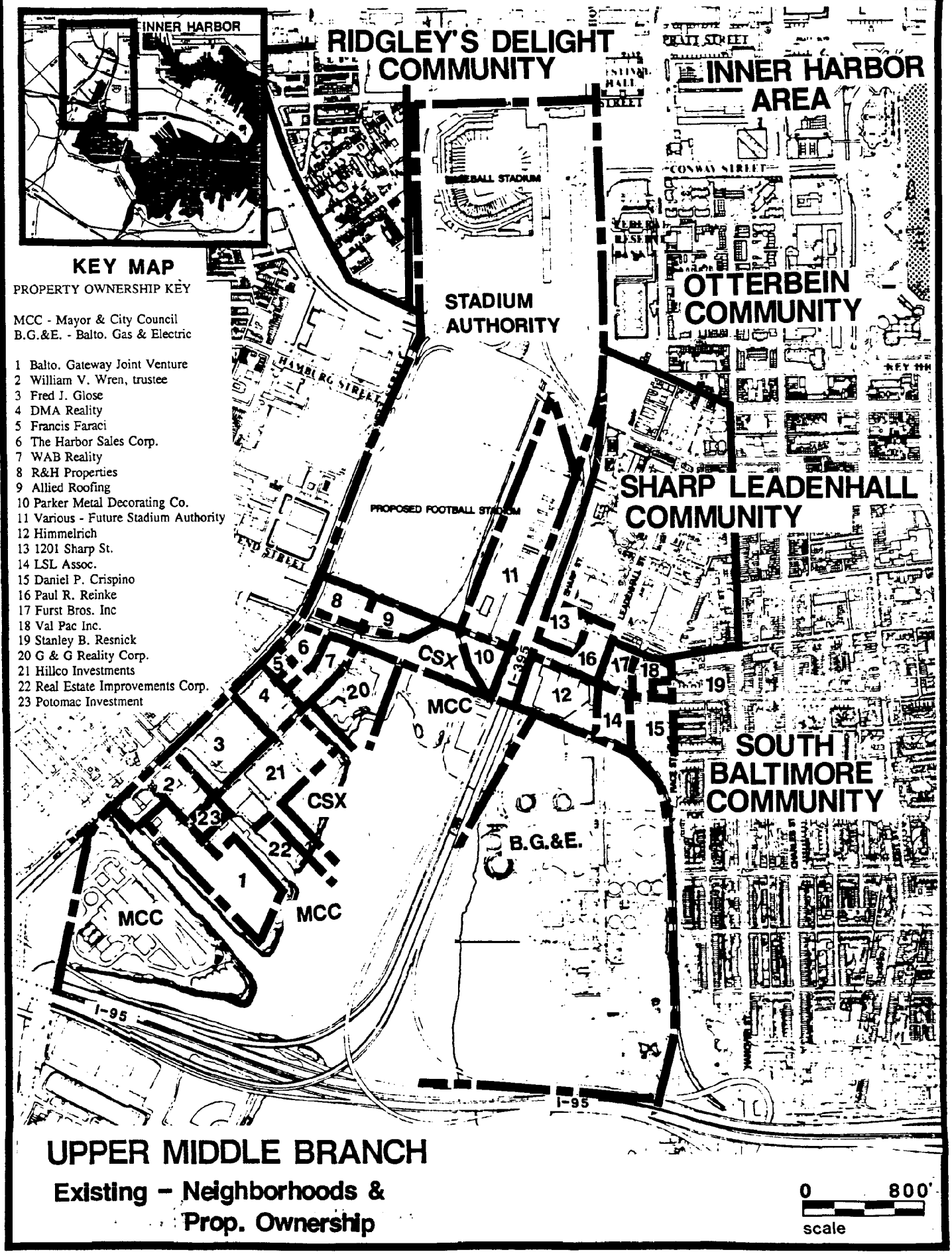


FIGURE 5C - Neighborhoods & Ownership



UPPER MIDDLE BRANCH

Existing - Neighborhoods & Prop. Ownership

0 800'
scale

FIGURE 5D Neighborhoods & Ownership

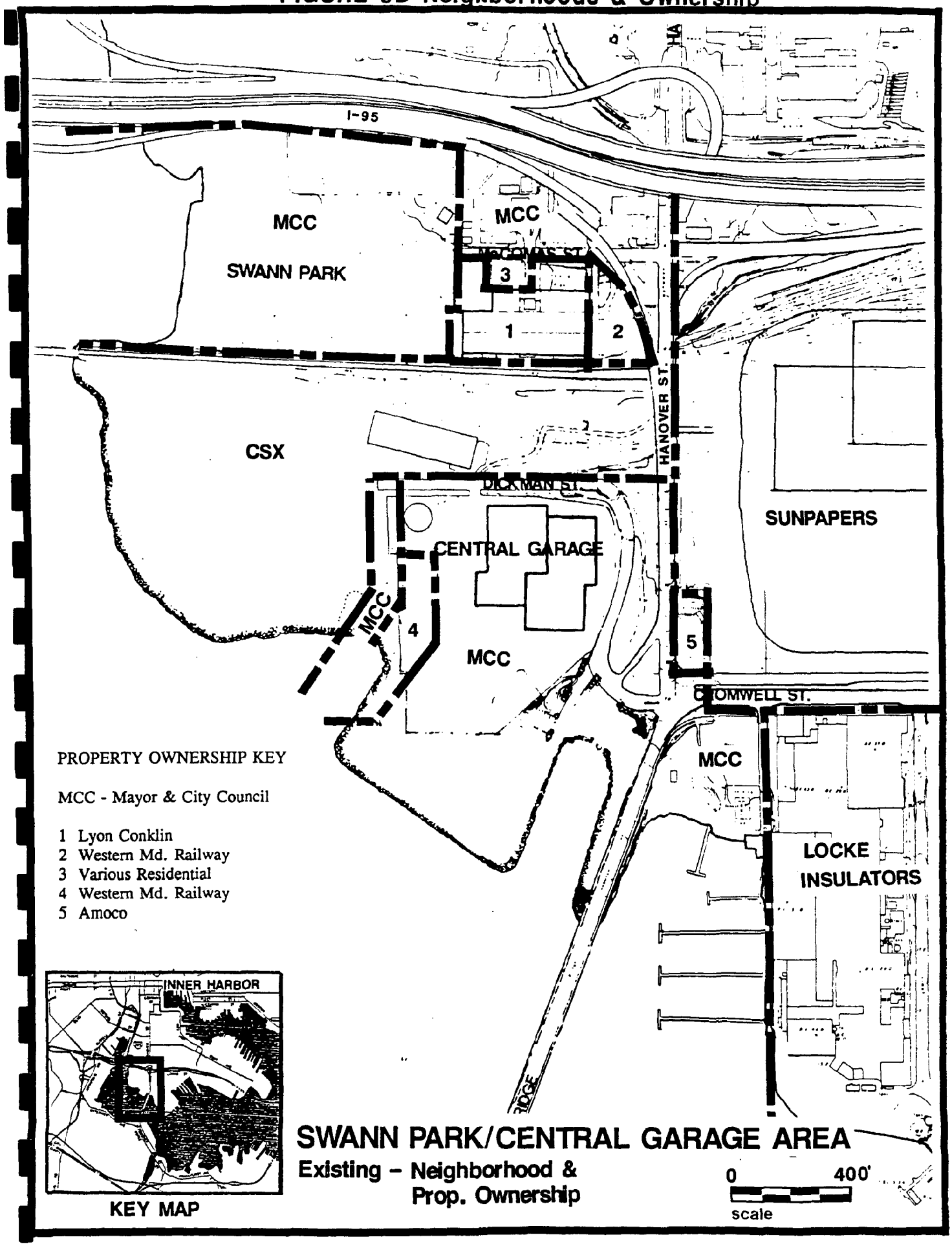
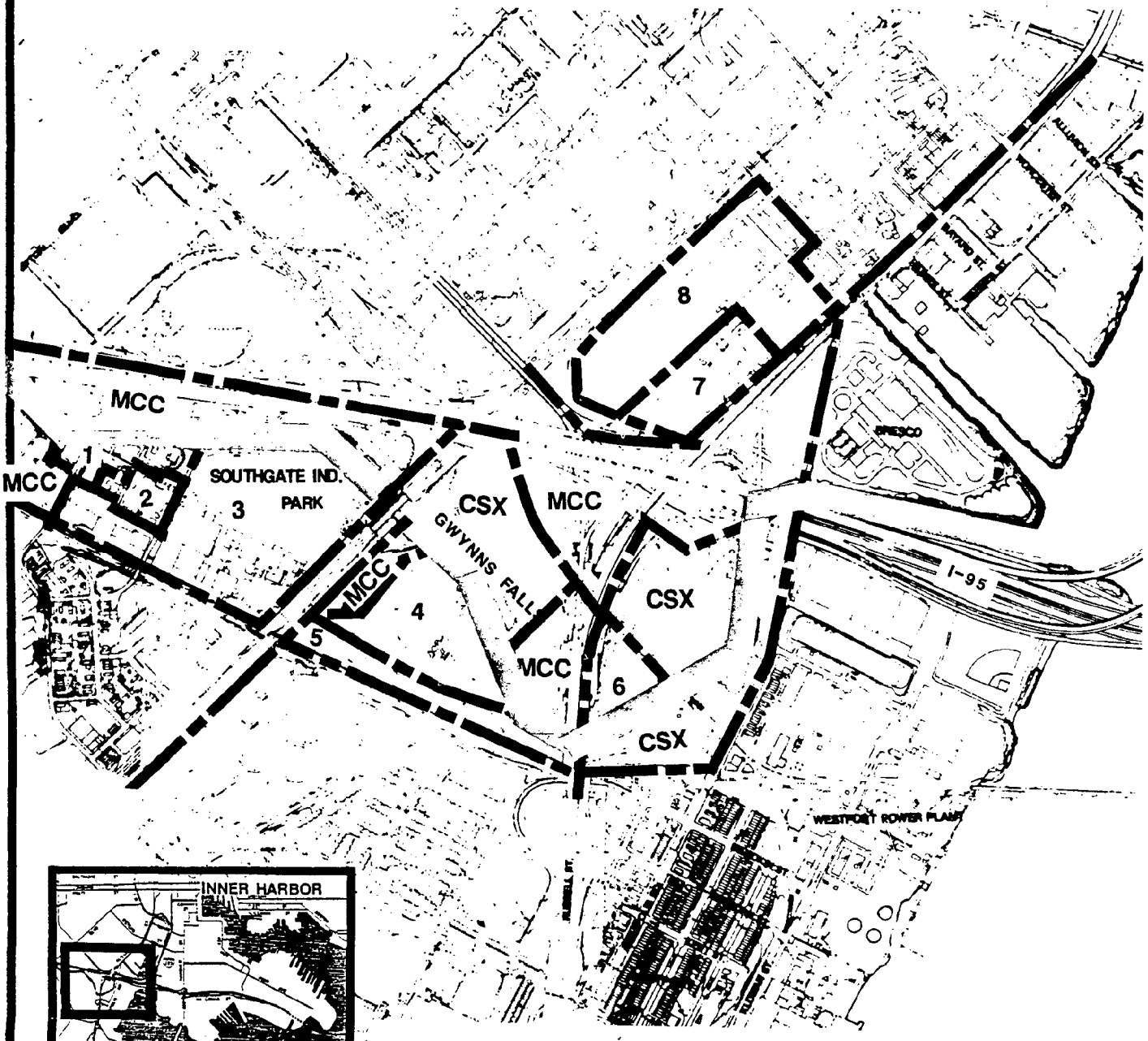


FIGURE 5E - Neighborhoods & Ownership

PROPERTY OWNERSHIP KEY

MCC - Mayor & City Council

1 Michael B. Decker Sr.
2 Misc., mostly residential
3 Southgate Limited Partnership
4 Flanigan
5 Skipper Jr.
6 Gary P. Ringer
7 Chemclear of Balto. Inc.
8 1200 Ridgely Ltd.



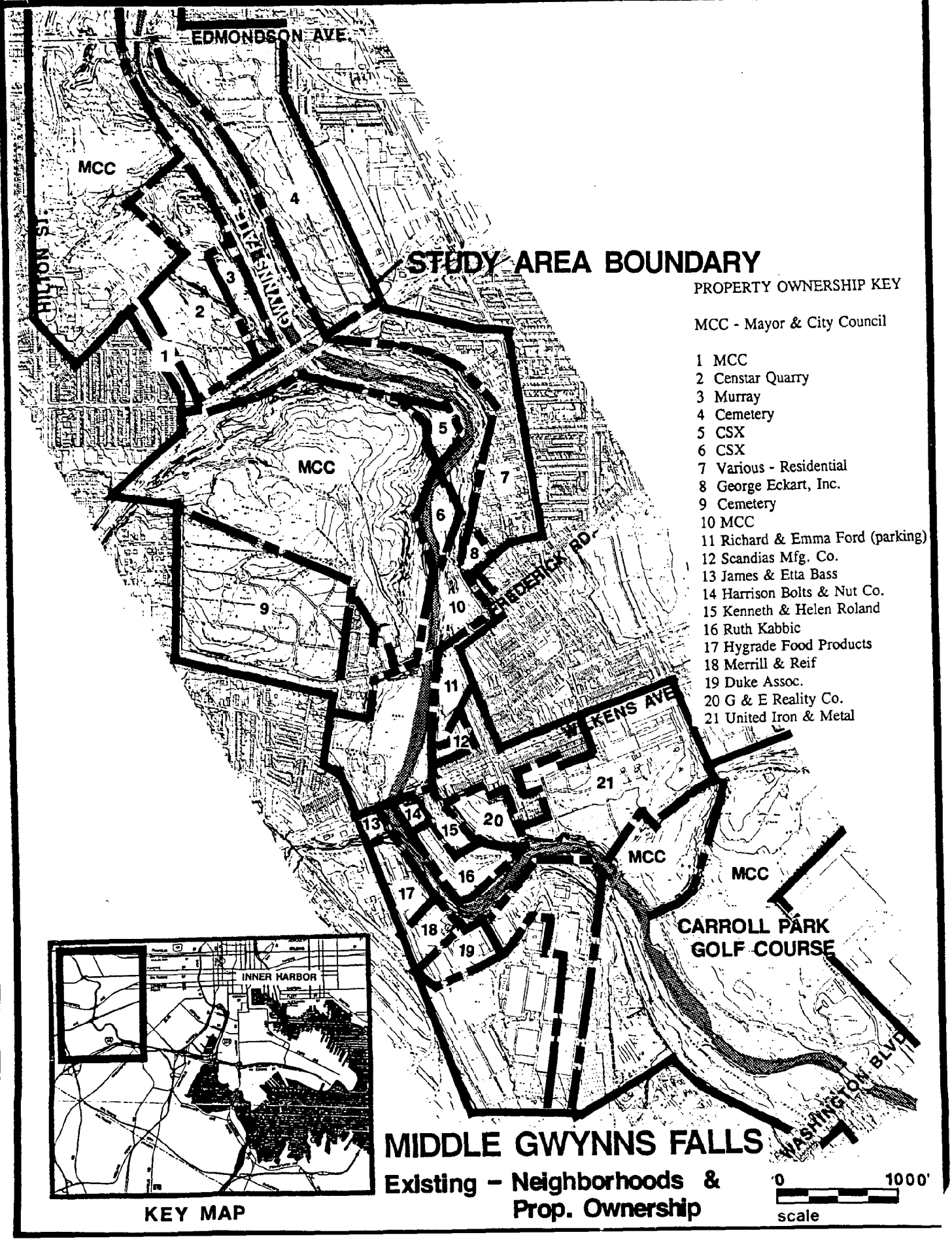
KEY MAP

LOWER GWYNNS FALLS

Existing - Neighborhoods & Prop. Ownership

0 800
scale

FIGURE 5F – Neighborhoods & Ownership



PROPERTY OWNERSHIP KEY

MCC - Mayor & City Council

1 MCC
2 Censtar Quarry
3 Murray
4 Cemetery
5 CSX
6 CSX
7 Various - Residential
8 George Eckart, Inc.
9 Cemetery
10 MCC
11 Richard & Emma Ford (parking)
12 Scandias Mfg. Co.
13 James & Etta Bass
14 Harrison Bolts & Nut Co.
15 Kenneth & Helen Roland
16 Ruth Kabbic
17 Hygrade Food Products
18 Merrill & Reif
19 Duke Assoc.
20 G & E Reality Co.
21 United Iron & Metal

Transportation & Circulation

The Middle Branch area is dominated by major highways and an expressway which provide excellent regional access. (Figures 6A-6F) The proposed Camden Yards Sports Complex and Port Covington Business Park are designed to take advantage of this access, but will impose constraints of their own due to the volume of traffic they will attract. Construction has also recently begun on the light rail transit system, which will eventually connect the Middle Branch to BWI Airport on the south and Hunt Valley on the north.

To serve the Port Covington Business Park, Cromwell Street will be extended as a four to six lane boulevard from Hanover Street to McComas Street. Construction begins in 1990. At the half-way point of its development, Port Covington's traffic volumes will necessitate the realignment of the exit ramp from northbound I-95 to McComas Street. This will provide direct interstate access to Cromwell Street. At that time, Hanover Street will no longer connect with eastbound McComas Street, and traffic will be redirected to Cromwell Street. Eventually a connection to Port Covington will be constructed under Hanover Street in the vicinity of Dickman Street to replace the current "jughandle" movement from southbound Hanover Street to Cromwell Street. This will connect Port Covington to the area south of Swann Park.

The major feature of the new Camden Yards Baseball Stadium relative to the Middle Branch will be a huge surface parking lot extending southward from the stadium for almost half a mile to Ostend Street. A wide walkway will extend the full length of the lot to protect pedestrians from vehicular traffic. Potentially, this walkway is a central element of a direct connection between downtown and the Middle Branch.

FIGURE 6B – Transportation

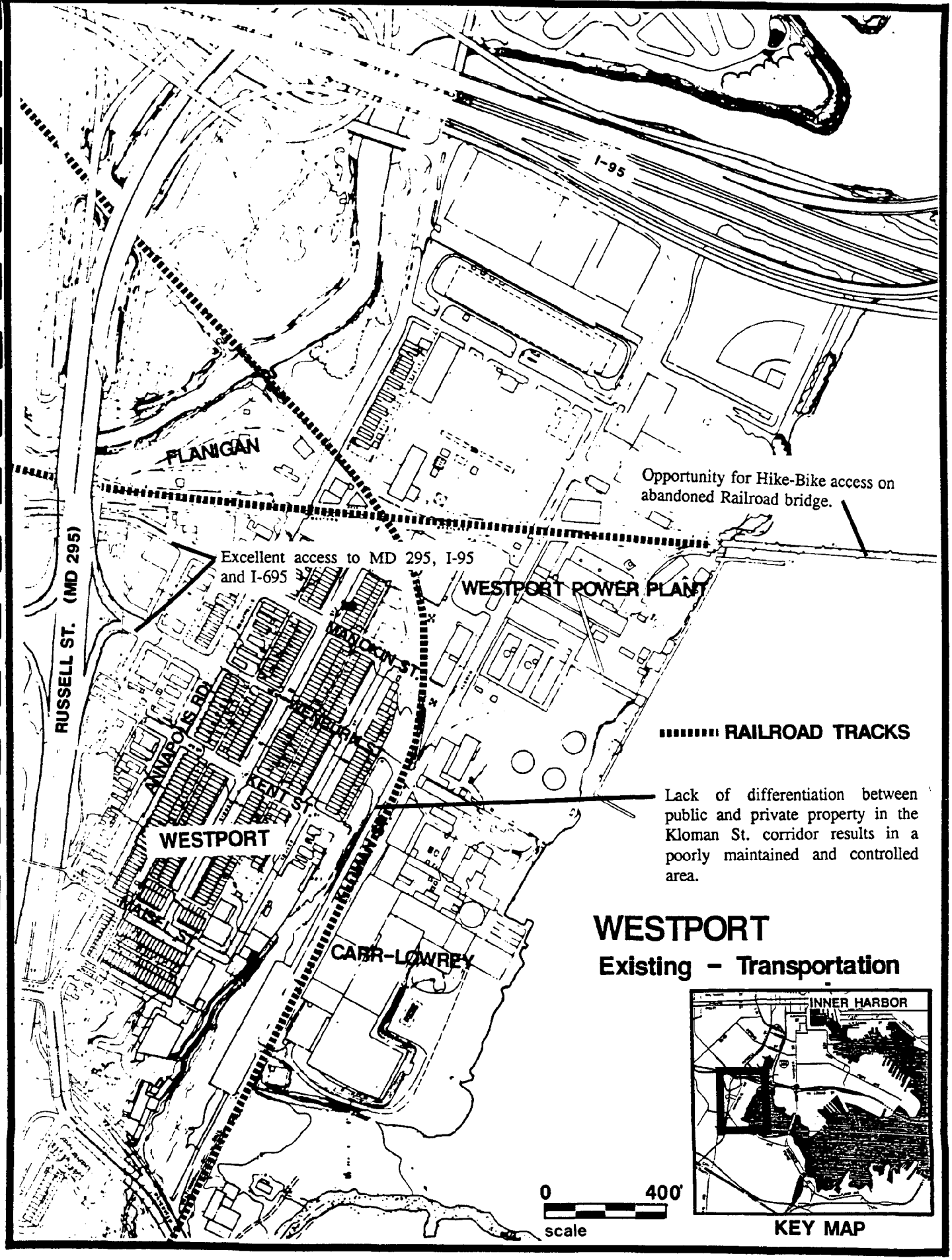
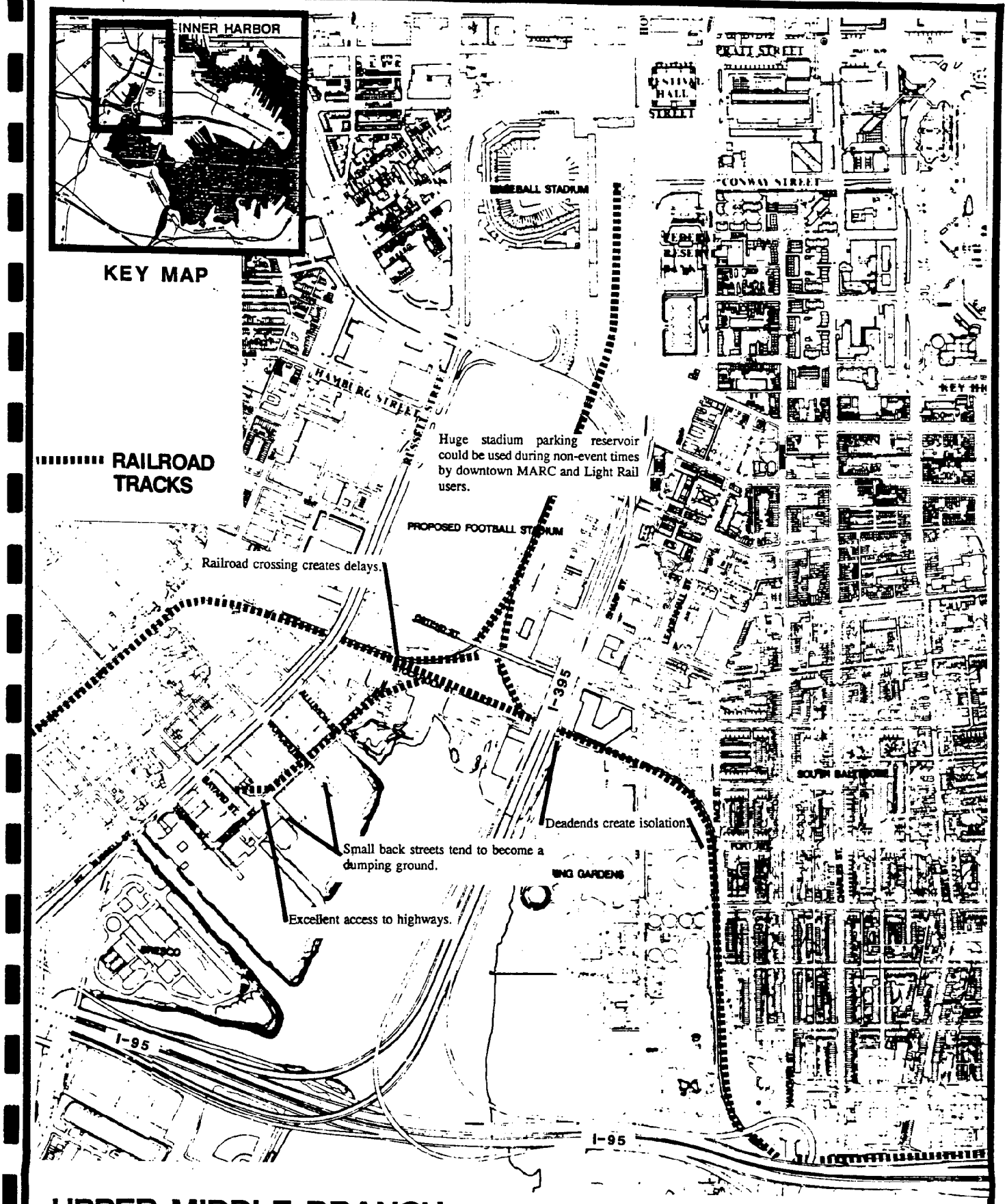


FIGURE 6C - Transportation



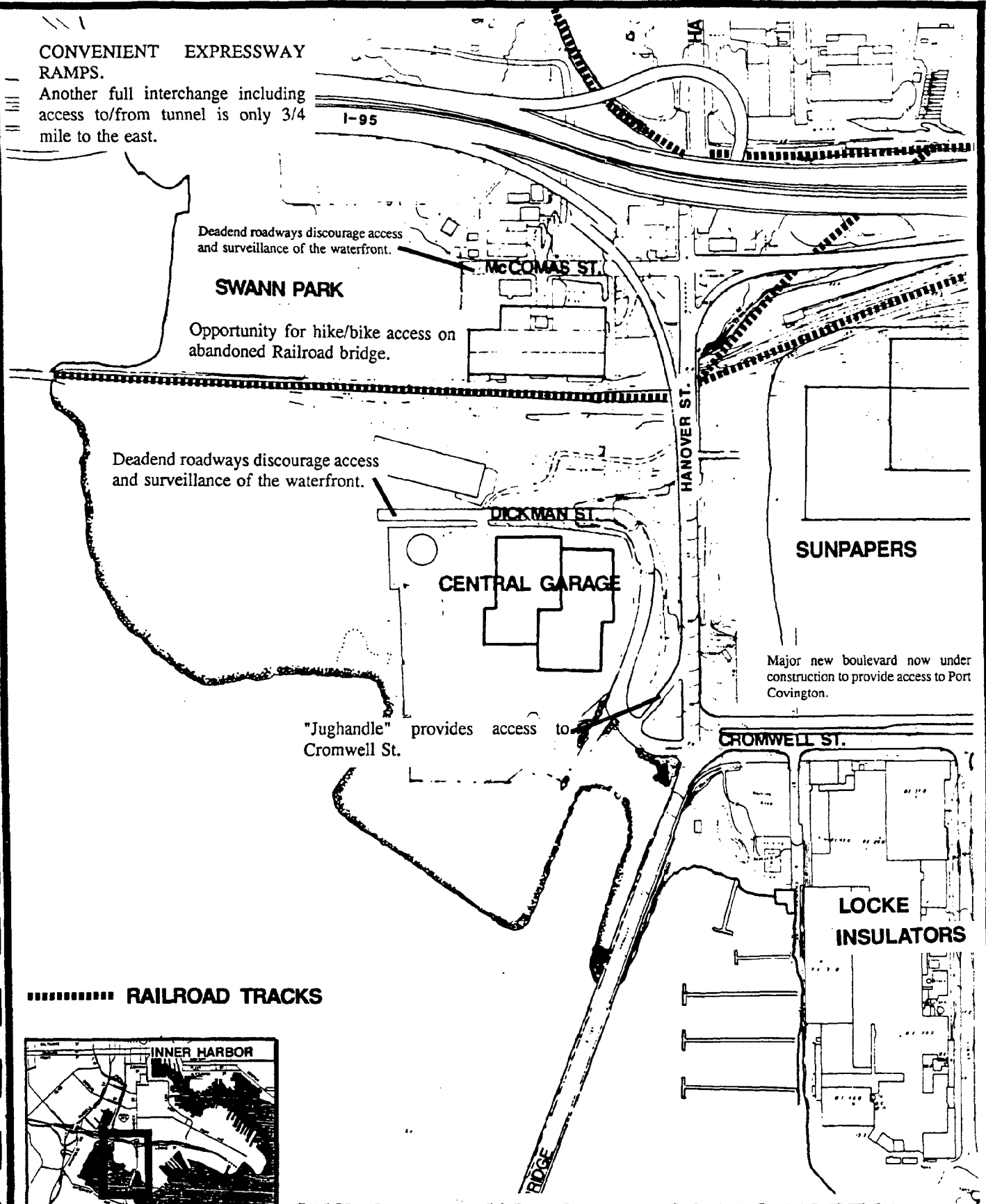
UPPER MIDDLE BRANCH

Existing - Transportation

0 800'

scale

FIGURE 6D - Transportation



SWANN PARK/CENTRAL GARAGE AREA

Existing - Transportation

0 400'

scale

FIGURE 6E - Transportation

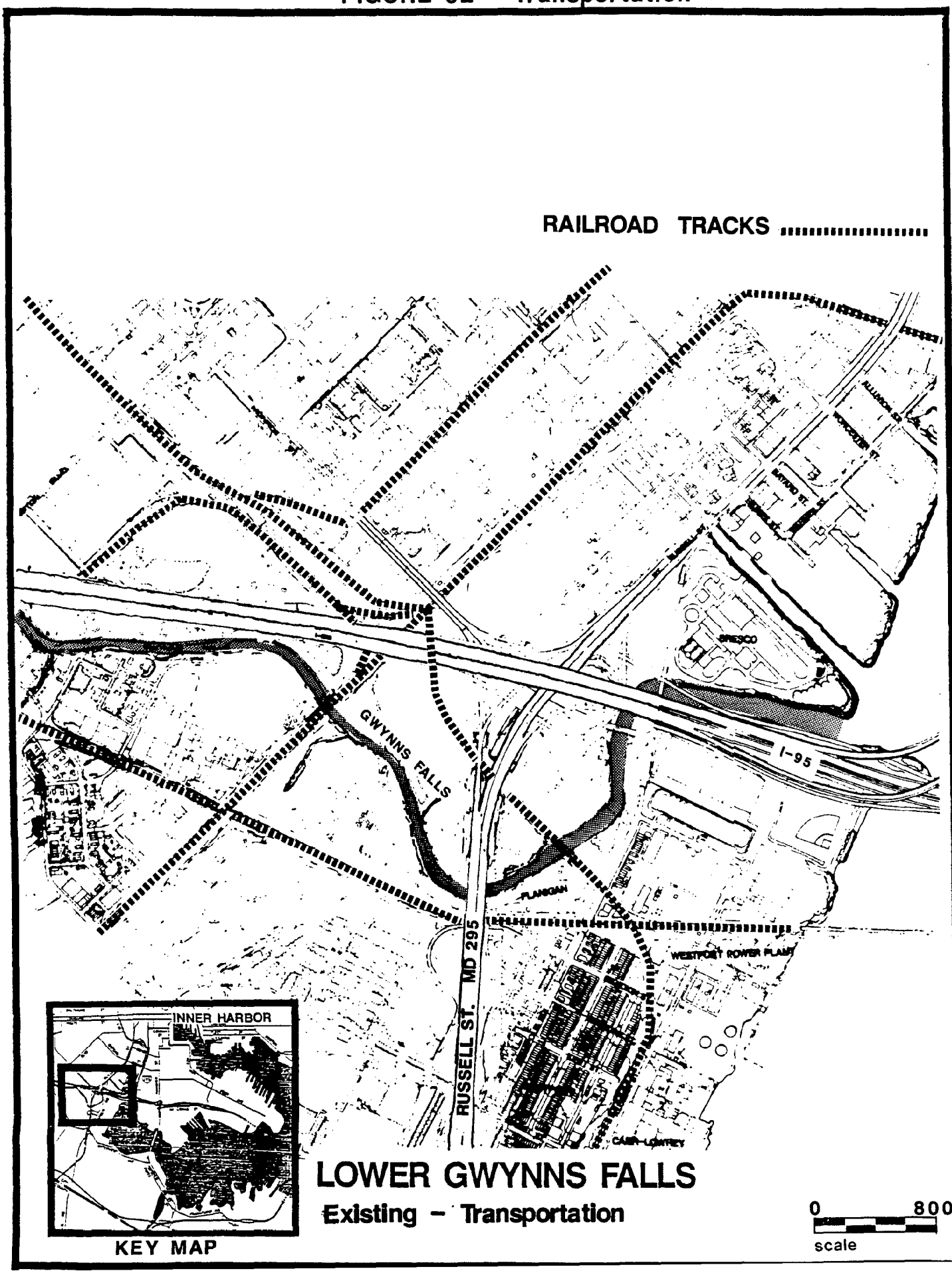
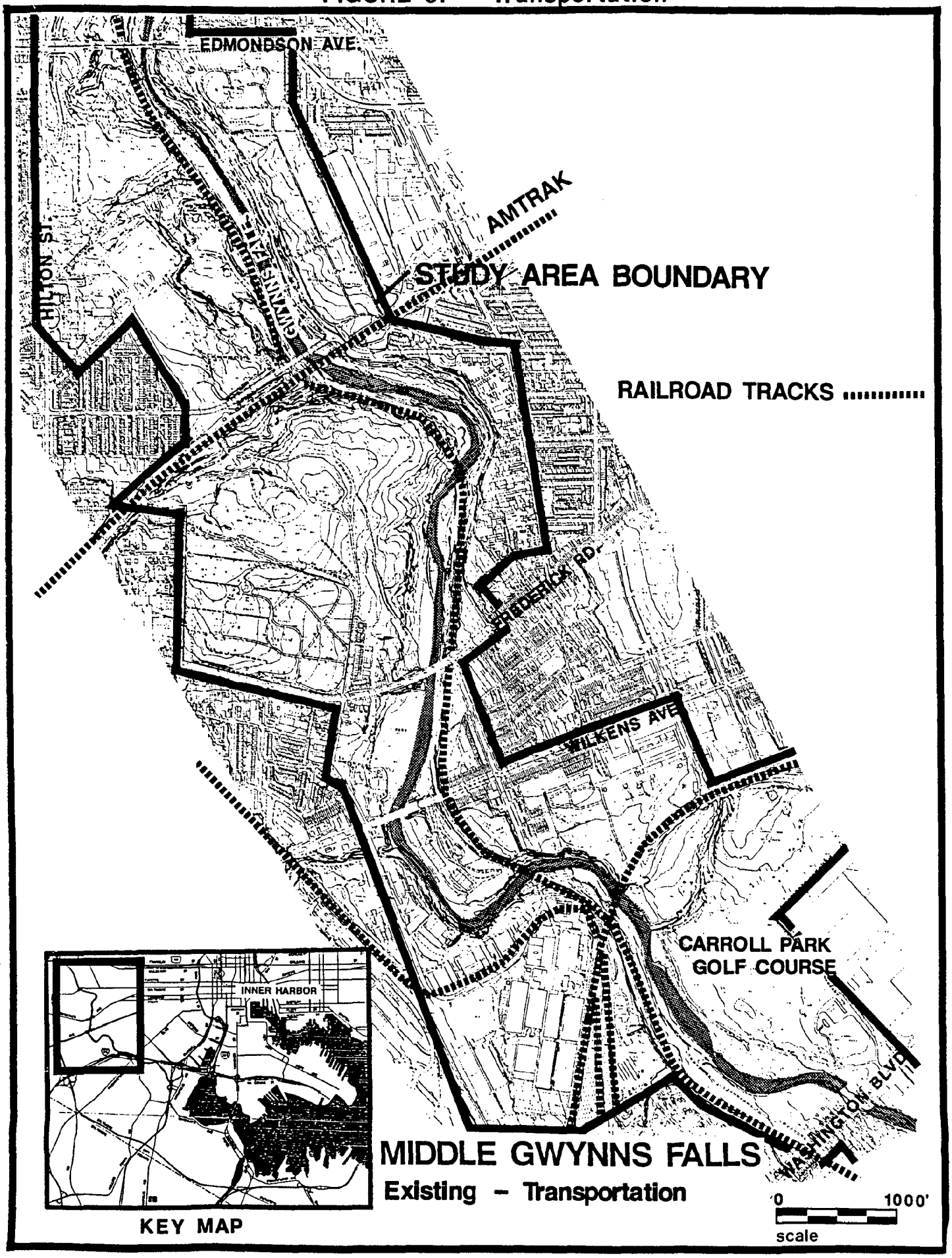


FIGURE 6F - Transportation



Ostend and Warner Streets will be significant automobile routes to and from the stadium. As a back-up to the Ostend Street bridge, a railroad crossing of the CSX Locust Point Branch line is planned for Sharp Street at Stockholm Street. Overflow parking by stadium fans will most likely occur on the streets and private lots in the industrial areas.

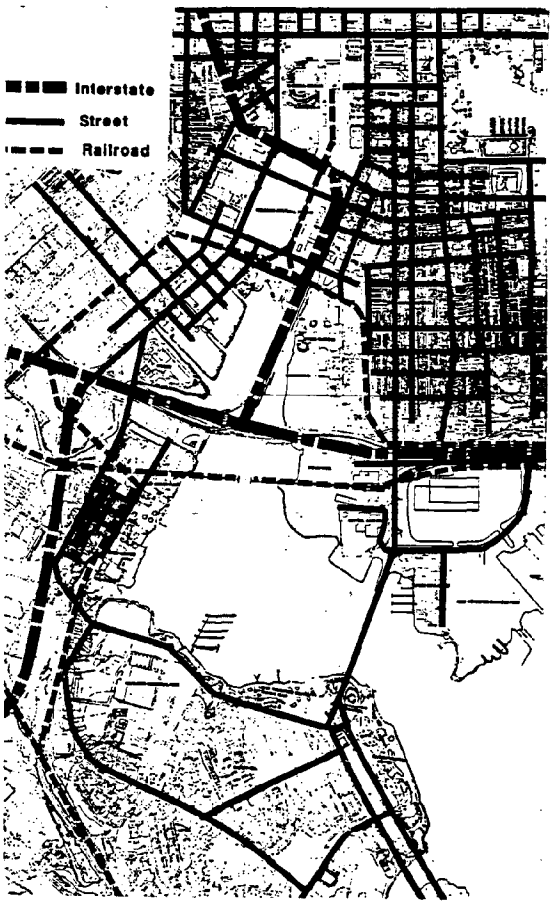
The light rail line will have two stations in the Middle Branch area. The Hamburg Street station (at Howard Street underneath the Hamburg Street bridge) will serve South Baltimore. This station may help attract commuters willing to park in the stadium lot during the day (when baseball is not being played) and ride the light rail into downtown or elsewhere. The other light rail station in the Middle Branch area will be located Westport at the eastern end of Kent Street above Kloman Street.

Street access to the upper Middle Branch shore consists almost entirely of dead-end streets - Dickman Street, McComas Street and Fort Avenue on the east; Haines Street, Oler Street, Worchester Street and Stockholm Street on the west. Dead end streets generally do not do a good job of defining public spaces or making those spaces secure by providing for public surveillance. Connecting the dead-end streets could remedy this while linking the various areas of the Middle Branch with each other and with the surrounding communities.

Urban Fabric

The urban pattern in the Middle Branch is characterized by four major elements: the various street grids, the highway, the railroad tracks, and the water. There are three major street grids in the Middle Branch. South Baltimore Streets run north/south and east/west.

The Camden area grid between Paca Street and Leadenhall Street shifts to northeast/southwest as in the case of Russell Street north of Ostend Street. The third grid is set up by Warner and Ostend Streets and runs from the shore to Carroll Park. Each of these grids end before the water's edge. With one or two exceptions, the street system does not connect to the water.

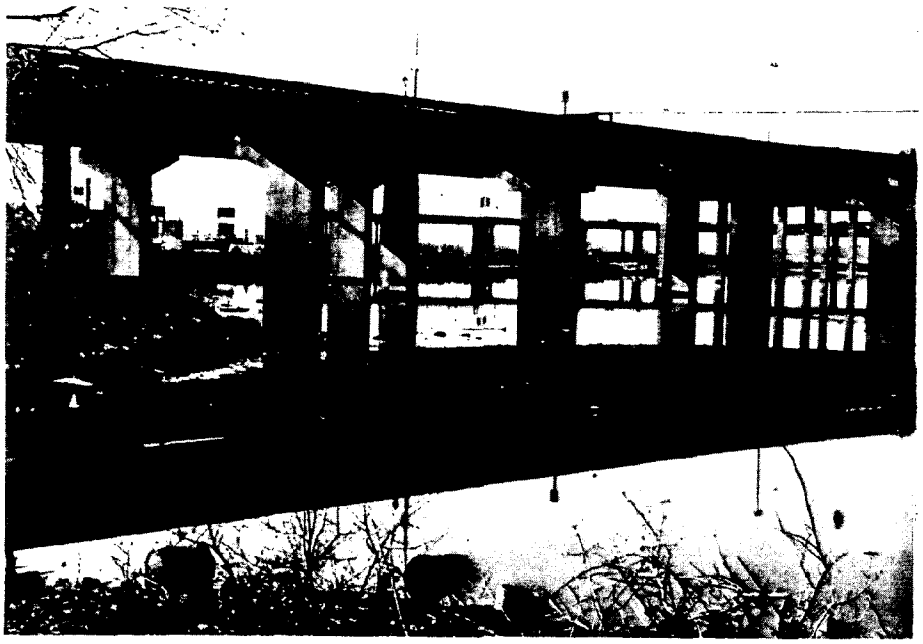


Street Grid

The interstate highways, I-95 and I-395, dominate the area visually and aurally. I-95 is elevated above both land and water on a modern concrete structure. The noise is an ever present rumble though the cars are rarely visible. The view from the elevated highway is

the most common perspective people have of the Middle Branch area. Nearly 100,000 people a day enter or leave the city on I-95.

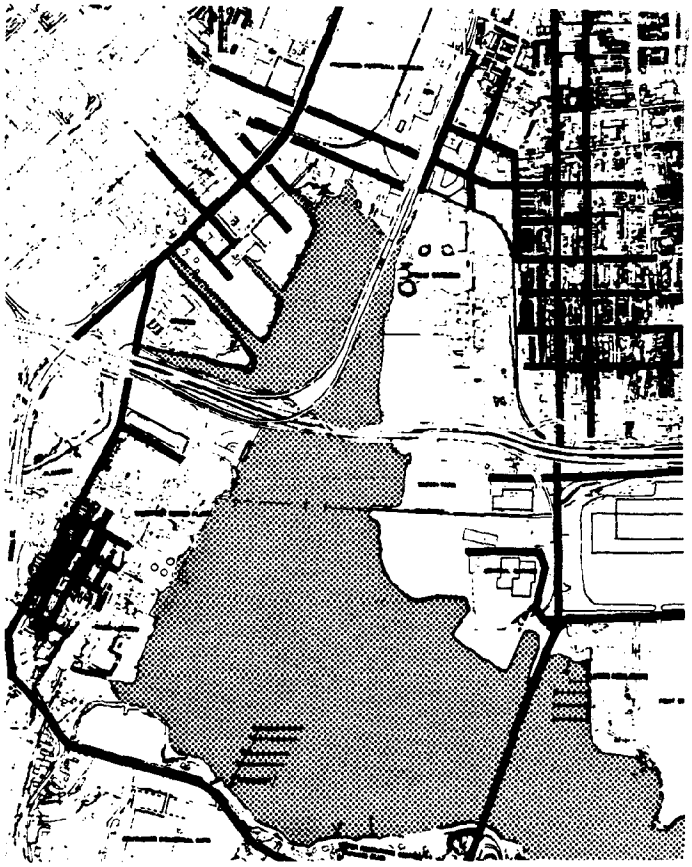
View of Highway from Stockholm St.



View of highway from Animal Shelter

Railroad tracks crisscross the Upper Middle Branch area at grade dividing the land in odd shaped pieces, and reducing the real and perceived access to certain areas. Trains do not go through on a continuous basis but the presence of the tracks deters auto and pedestrian access.

Since the Middle Branch is an embayment, the land surrounds the water. As a result, there is a constantly changing relation of land to water.



Street pattern relative to the water

The urban patterns found in the Middle Branch area are fragmented and unorganized. This can be very disorienting. Streets end abruptly

with few clues on how to continue or which way to go. Entrances to buildings and properties are often unclearly marked and hard to find. In residential areas, the sidewalks often end at the last house making connections to adjacant industries and other properties difficult. The rail lines and highways add to the confusion because they are unrelated to the street grids.

Community Context

Several residential communities are near the Middle Branch although none are directly on the waterfront (Figures 5A-5F). Table 1 summarizes demographic information about the residents of these neighborhoods.

The South Baltimore peninsula, which forms the east side of the Middle Branch, is a densely populated area with several neighborhoods. South Baltimore long has been home for blue collar workers and their families. Over the last decade, home values and average income on the peninsula increased at an accelerated rate as the influence of the Inner Harbor development and the renovation of homes in Federal Hill spread. However, there are still concentrations of dilapidated properties and a significant number of low income households. South Baltimore supports several strong and active community organizations. The South Baltimore Improvement Committee, Sharp Leadenhall, Federal Hill, Riverside Neighbors, Riverside Park and Locust Point. They range from very expensive Inner Harbor residences, to economically gentrifying blocks, to South Baltimore's traditional blue collar neighborhoods.

TABLE 1 Neighborhood Demographics - 1980 Census

Neighborhood	Population	Households	Average Household Income	Average Age
South Baltimore	11,570	4,215	$15,008	32.7
Sharp Leadenhall	803	272	11,352	34.6
Federal Hill	1,783	665	18,449	40.2
Westport	1,783	479	14,537	29.1
Cherry Hill	12,519	3,741	10,986	21.8

The Westport neighborhood is located on the west side of the Middle Branch. It is a blue collar, racially integrated neighborhood somewhat cut off from the rest of the city by highways, industrial areas and the Middle Branch. Between the community and the waterfront are some of the heaviest industries on the Middle Branch. Westport has chronic industrial-related problems with dust, noise, and truck traffic.

The Cherry Hill community overlooks Middle Branch Park on the south side of the Middle Branch. It is a very large and historically black neighborhood. The neighborhood has always been somewhat isolated from the rest of the city in part due to the physical barriers of the Middle Branch and surrounding industrial uses. The housing stock consists predominantly of rental apartments which are either part of a large low-rise public housing complex (1350 units) or large privately-owned garden apartment developments (1400 units). The neighborhood has a very active civic life with a large number of community organizations.

THE NATURAL ENVIRONMENT

Natural History

Physiography - The Middle Branch and surrounding lands are part of the Coastal Plain physiographic province, an area entirely covered by water millions of years ago. The landforms of the region have influenced both the natural environment and the cultural characteristics of the landscape.

The predominant geologic formation in the area, the Potomac Group, is composed of unconsolidated sands and clays that were formed when sediments were washed down from higher areas millions of years ago and deposited. Upstream from these deposits are harder crystalline rocks which are part of the Piedmont physiographic province. The juncture of these two formations, called the "fall line" occurs in the Middle Gwynns Falls. It played a significant role in establishing industry along Baltimore's streams because waterfalls, a source of energy for mills, were common here. Once such mill, Mt. Clare Mill Race was located in the Lower Gwynns Falls.

Iron and clay deposits of the Potomac group played a major role in the settlement of the area in the 18th century. An iron ore furnace and clay brick yards were the first industries located in the Lower Gwynns Falls. When wood frame houses became illegal in the 19th century due to fire hazard, the brick yards were a major source of bricks for the Baltimore rowhouse.

The Gwynns Falls travels through two physiographic regions: the Piedmont Plateau and the Coastal Plain. The stream from Edmundson Avenue to Frederick Avenue is characteristic of the Piedmont- fairly steep banks and a rock stream bed with falls and rapids which lend a

highly aesthetic quality. The "fall line" is located between Frederick Avenue and Carroll Park, marking the juncture of the Piedmont and the Coastal Plain physiographic regions. Historically, the natural landform of the Lower Gwynns Falls had gently sloping banks accompanied by a broad floodplain. This characteristic has changed somewhat as industries have filled the floodplain to safeguard their property.

Hydrology - The Middle Branch is a tidal estuary where freshwater meets saltwater, and becomes brackish. This water body is actually the mouth of the Gwynns Falls, a freshwater stream, widening to join the Patapsco River, a tidal tributary to the Chesapeake Bay. The Gwynns Falls still flows through an open channel, but Chatsworth Run, a major tributary at the head of the Middle Branch, is now enclosed in a culvert. This freshwater stream once teaming with fish now is covered by city streets and buildings.

Prolific wetlands were once a part of the Middle Branch estuary, providing a ready food source for the early settlers. In particular, extensive acres of wetlands were at the upstream limit of the Middle Branch, the mouth of the Gwynns Falls, and the mouth of the Patapsco River, where Reedbird Park is located (see Figure 2).

Wildlife Habitat - When colonists arrived in the Middle Branch, they found the prolific wetlands of the estuary surrounded by a tremendous deciduous forest teaming with wildlife. An abundance of birds, mammals, reptiles and amphibians fed and nested in this haven, providing food and building materials for the colonists.

The oak-chestnut forest which covered the majority of the Gwynns Falls watershed was home to many species which are now absent from the region. The larger mammals included such species as wildcat, deer and bear. Birds of prey were probably prolific including such species as

hawks, owls, eagles, and buzzards. Forest interior dwelling birds which migrate seasonally to the tropics were abundant. Wild turkey roamed the forest.

Many water birds once inhabited the Middle Branch, feeding and nesting in the wetlands, mud flats and open water including waterfowl (e.g. ducks and geese), shore birds (e.g. sandpipers), gulls and wading birds (e.g. herons and egrets). Wood cocks, wood ducks and bobolinks (reedbirds) lived in the swamp thickets which were once in abundance. "Reedbird" Park, where the Patapsco River opens to the harbor, was once such a wetland, owing its name to the wildlife it once supported.

The waters of the Middle Branch once contained a wealth of different fish species. Located at the juncture of fresh and salt water, the estuary was home to species typically found in both these waters. Many of these fish such as shad, herring, and rock fish, were anadramous, that is, coming from the sea to fresh water to spawn. Some species, such as the eel, travel from fresh water to salt water to spawn. The blue crab was here in abundance, waiting to be discovered by the culture to come.

Water Quality - As the Gwynns Falls watershed developed from the 18th century through to the 20th, the water quality of the stream and Middle Branch suffered increasingly from the effects of urban runoff as well as sewage. In 1955, a comprehensive survey indicated poor water quality throughout the City portion of the Gwynns Falls, primarily due to undersized sections of the Gwynns Falls interceptor. At this point in time, the stream was dotted with signs indicating **"DANGER - TYPHOID FEVER- POLLUTED WATER-KEEP OUT."**

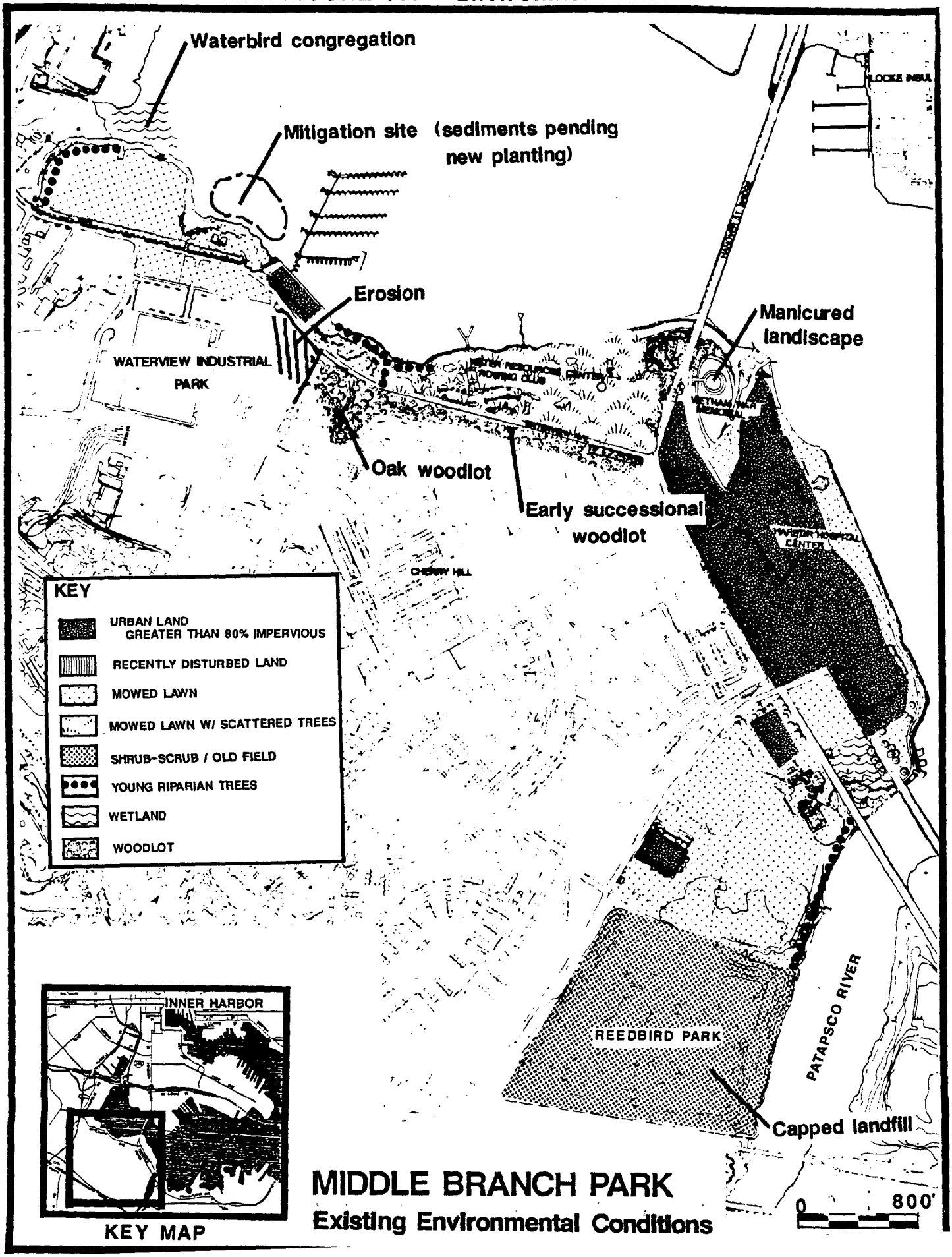
The Natural Environment Today

The natural environment that can be found surrounding the Middle Branch today is a small fraction in quantity and bears little resemblance in quality to what was found two centuries ago (Figures 7A-7F). Development of the watershed has resulted in continued siltation, creating a hostile environment for bottom-dweller and submerged vegetation. Industrial and sewage discharges have polluted the waters. Deforestation has all but obliterated forest habitat and shoreline filling has removed vast acres of wetland vegetation. As a result, only the most tolerant wildlife species remain, and many of the waterbirds no longer nest here. Even so, the Middle Branch has some of the best wetland habitat found in the City, where people can still delight in viewing herons, egrets, and ducks feeding.

Water Quality - Water quality in the Middle Branch and Gwynns Falls is in a degraded condition, though improvements have been made in the last decade. Biological studies show that there is a diversity of fish and wildlife that would benefit from water quality improvements. The aesthetic and recreational environment would also benefit from improved water quality.

Water quality data on the Middle Branch is either out-dated or scarce. Extensive studies performed in the 1970's (Maryland 303E, 1974) revealed that fecal coliform counts in the harbor, an indicator of sewage pollution, were in extreme violation of health standards for water contact recreation. Sampling in the Middle Branch in 1985 also indicated significant health standard violations. Recent improvements in sewer conveyance system are expected to make significant improvements in the amount of sewage contamination.

FIGURE 7A - Environmental Conditions



MIDDLE BRANCH PARK

Existing Environmental Conditions

FIGURE 7B - Environmental Conditions

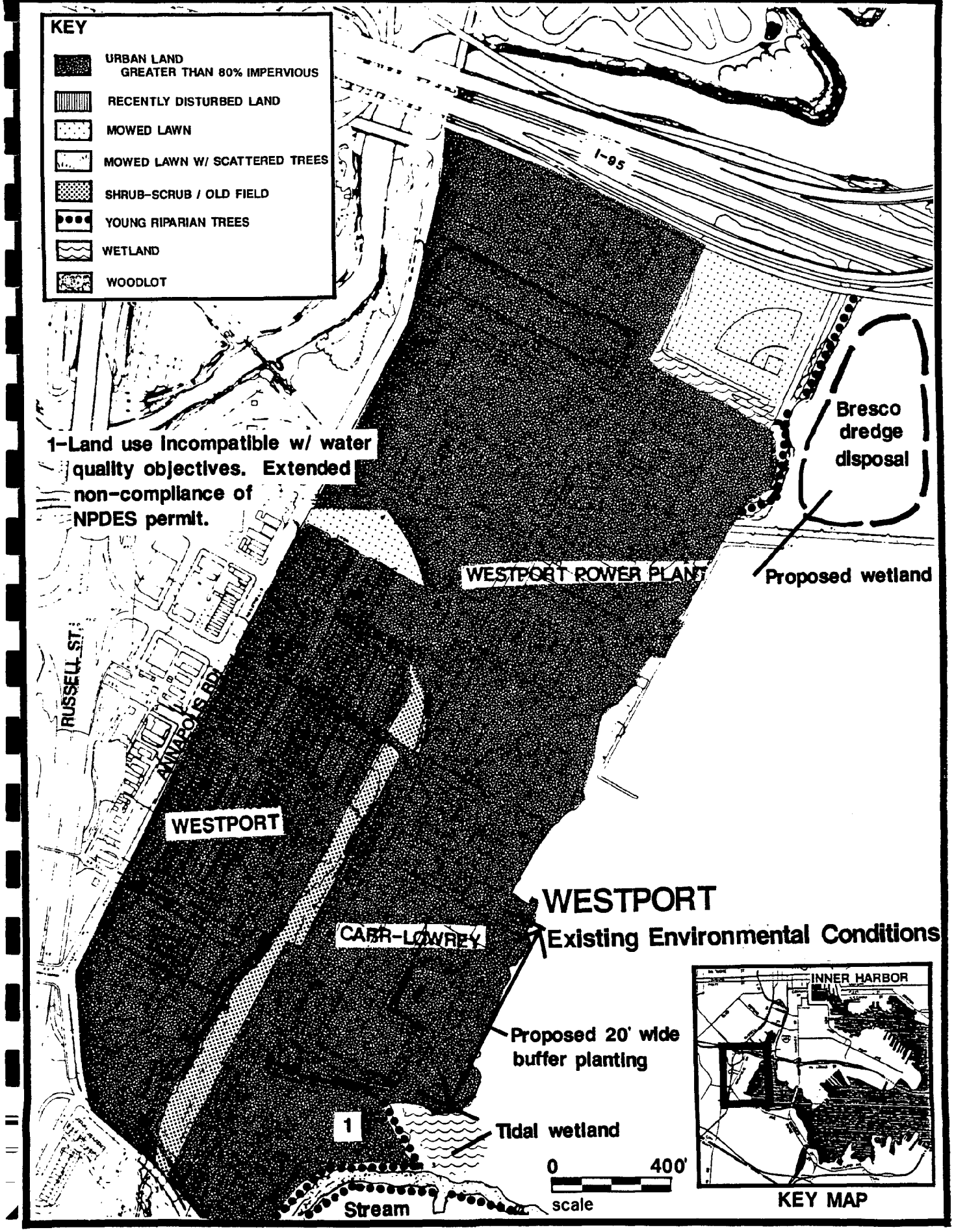
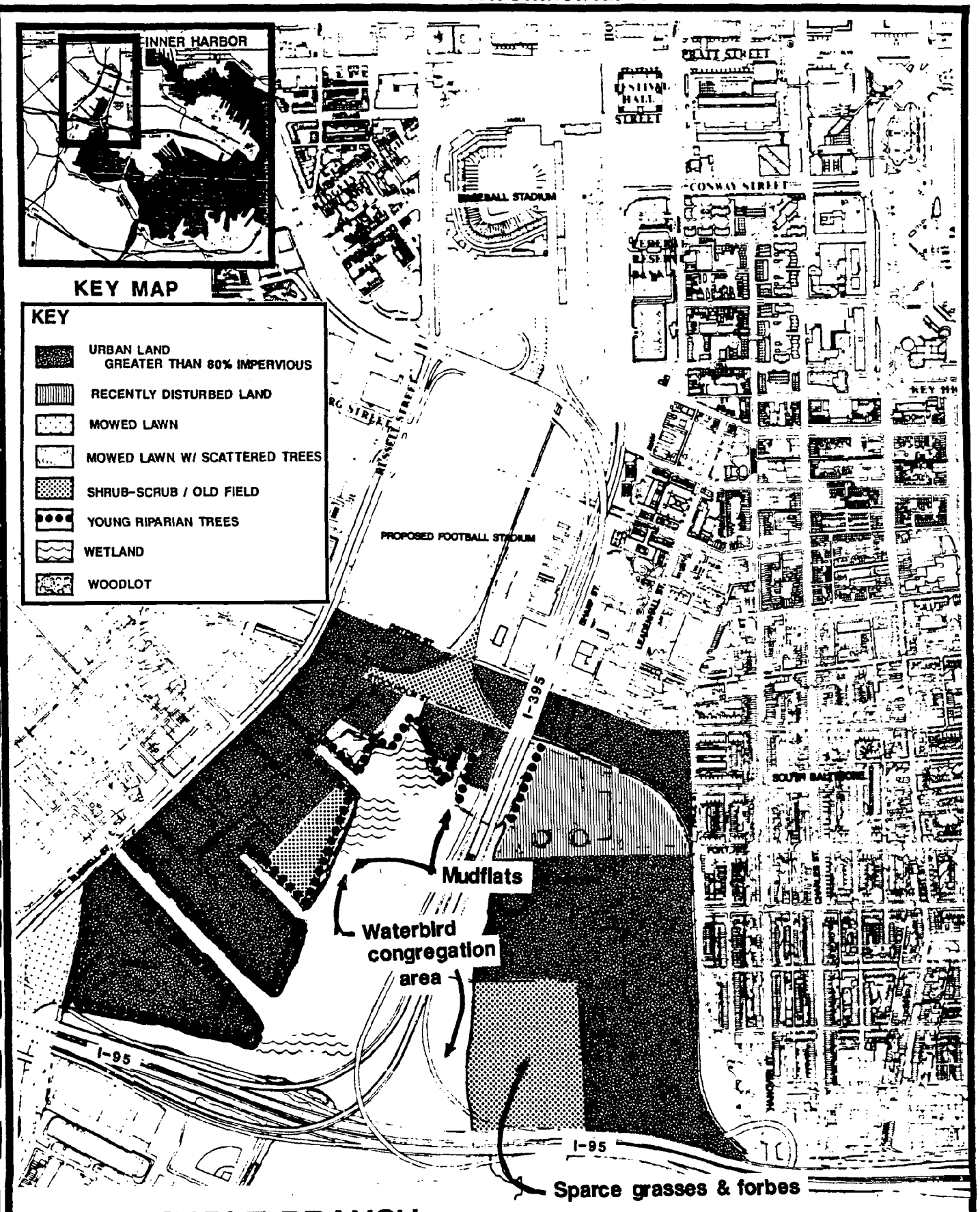


FIGURE 7C - Environmental Conditions



UPPER MIDDLE BRANCH

Existing Environmental Conditions

FIGURE 7D - Environmental Conditions

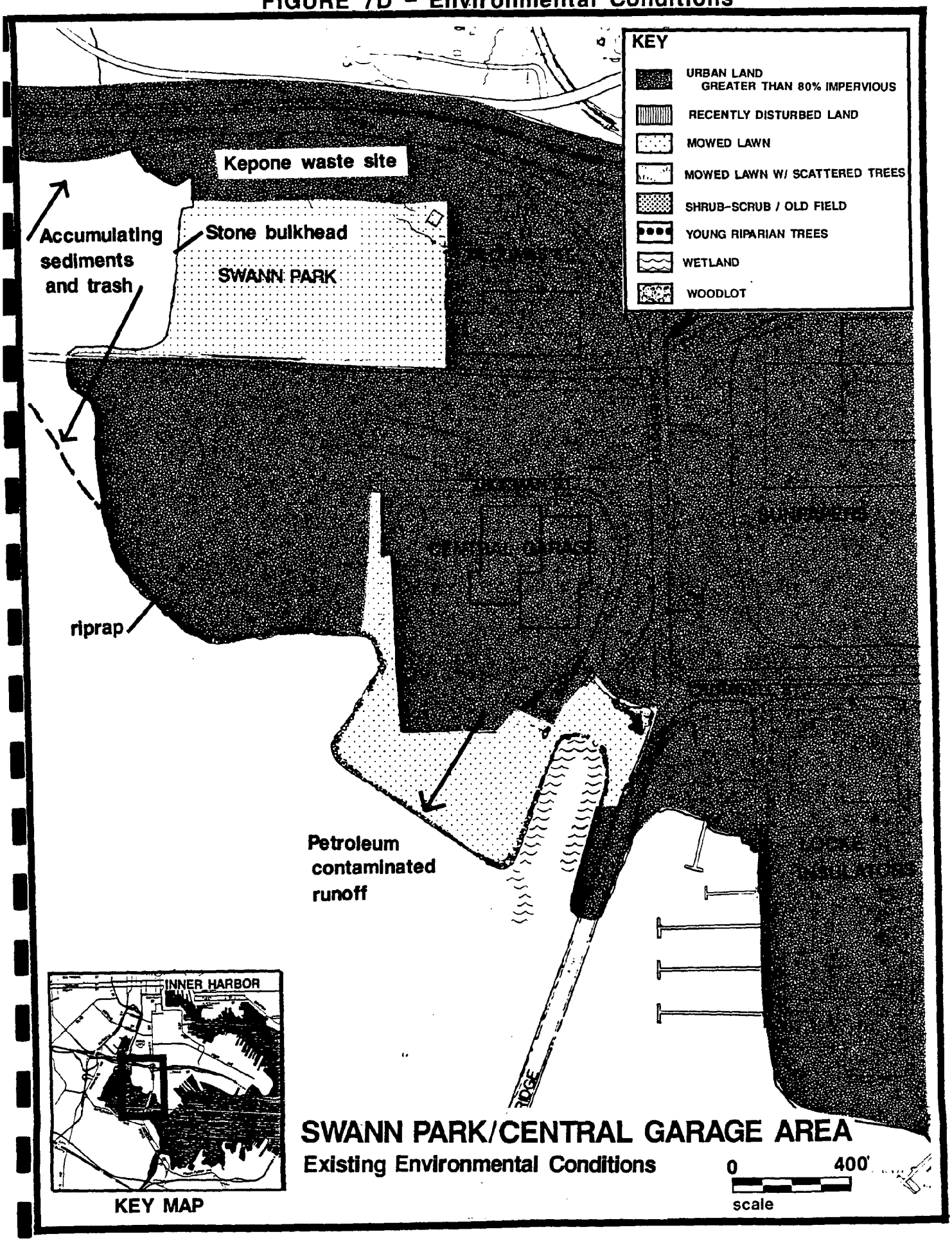


FIGURE 7E – Environmental Conditions

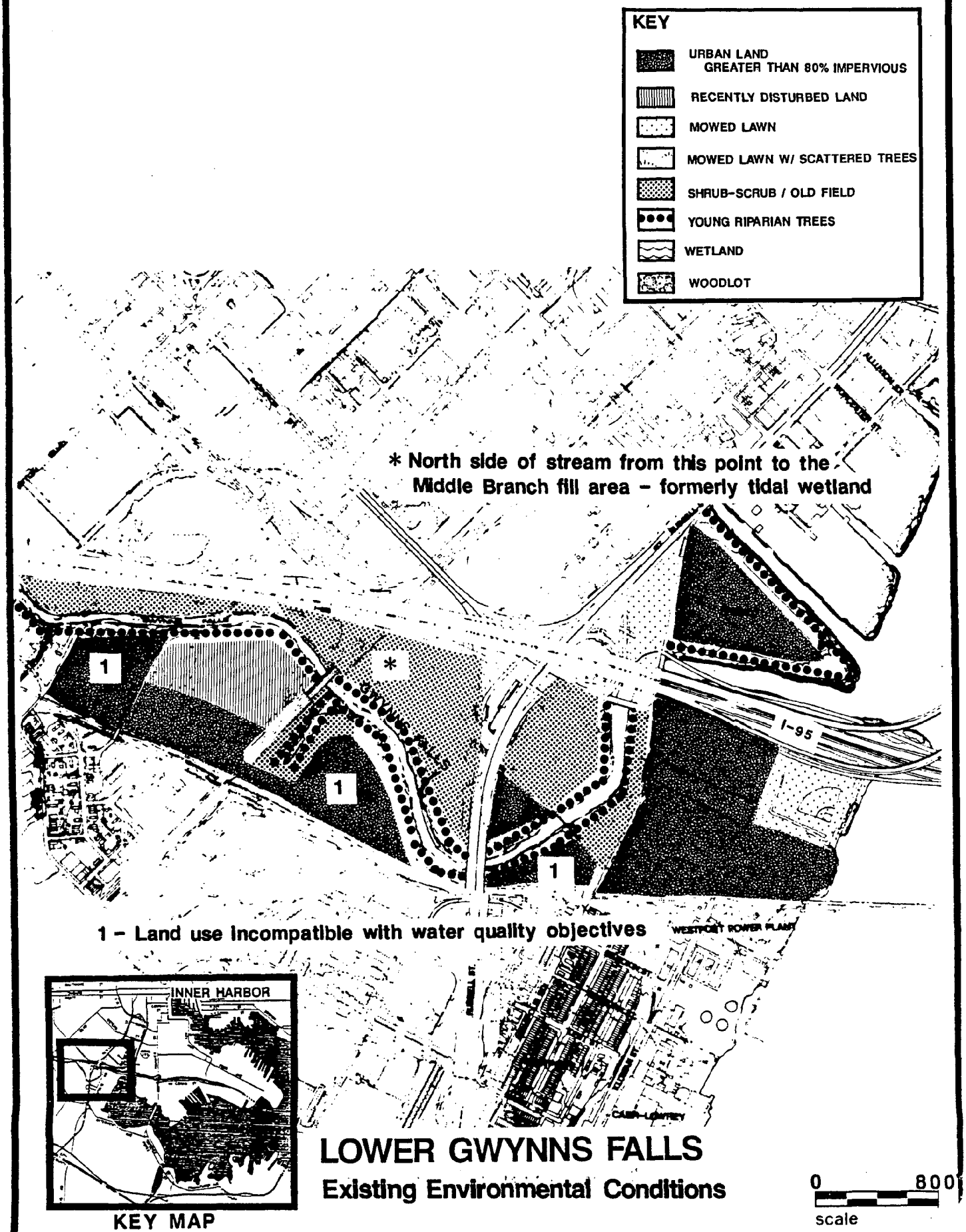
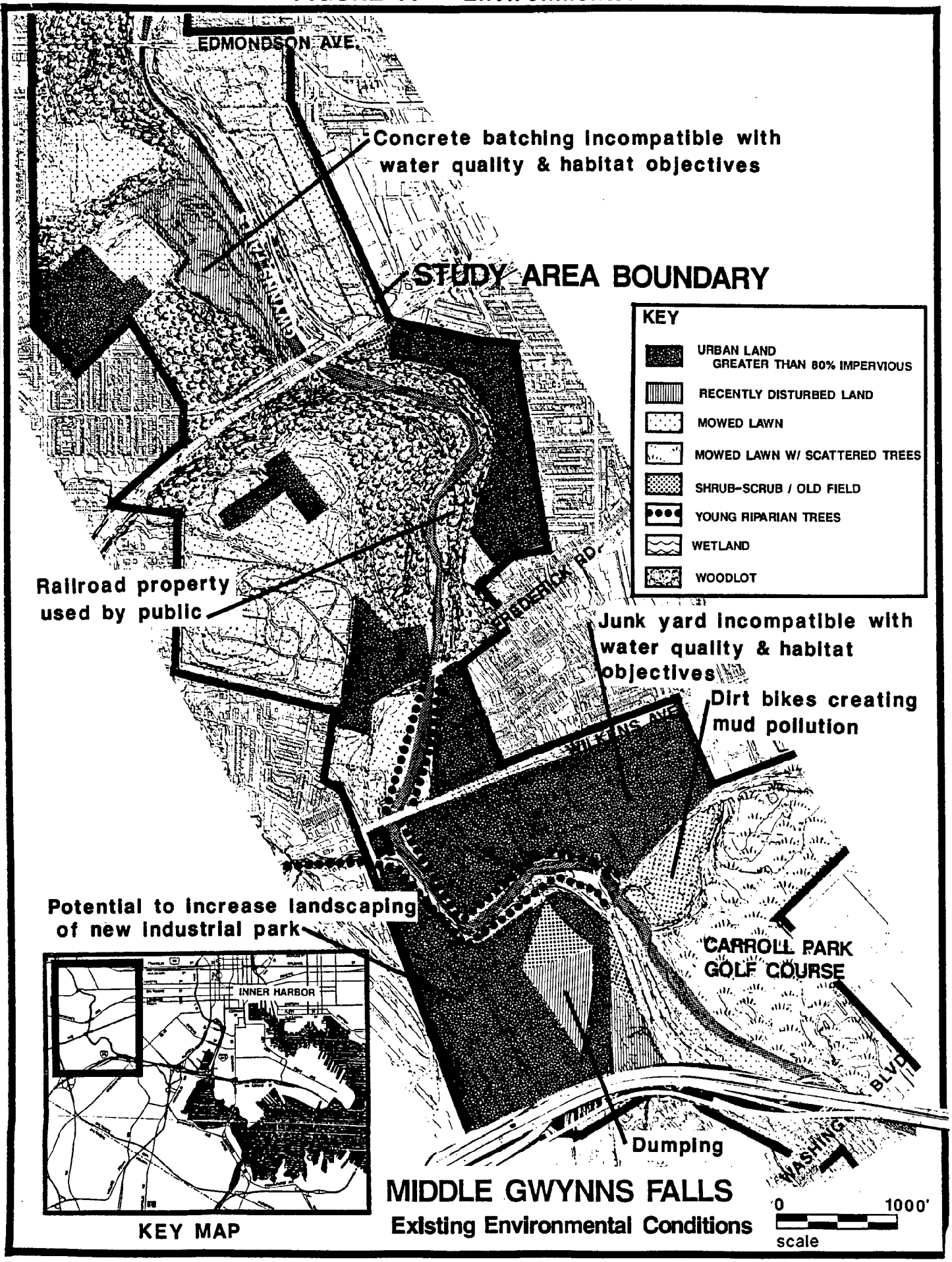


FIGURE 7F – Environmental Conditions



The sources of pollution in the Middle Branch include point source and non-point sources. Point sources within Baltimore City include approximately 25 industries in the Gwynns Falls watershed with National Pollution Discharge Elimination (NPDES) permits (additional point sources are probably located in Baltimore County). Six of these industries discharge directly to the Middle Branch. The circulation pattern of the habor waters may also be contributing toxic and organic pollutants from dischargers in other areas of the harbor.

Another point source of pollutants to the Middle Branch are "permitted overflows" from the sanitary sewer conveyance system. The sewer was designed to overflow into the Gwynns Falls through cross connections with the storm drain system. Preliminary monitoring of the overflows indicates that new sewer lines, the Gwynns Falls interceptor and southwest diversion, have eliminated this source of pollutants.

Non-point sources of pollutants include unidentified leakages from the sanitary sewer conveyance system as well as urban runoff (and perhaps some agricultural runoff in Baltimore County). The Gwynns Falls interceptor was designed to carry wet weather flows which are a result of the infiltration of water into the conveyance system during storms. These surges are a result of water entering the system at cracks and joints in the line. Discharges may occur in some of these damaged areas. Where exfiltration is observed by the City or reported by private citizens, the City makes repairs as funds are available.

Urban runoff is a significant pollutant of the Middle Branch. Recent modeling by the Environmental Defense Council has suggested that for those pollutants found in storm water runoff (copper, lead, zinc, and petroleum products being the major pollutants), the contributions made by urban runoff may exceed those of industry.

Toxic materials including heavy metals and pesticides, have also been found in the sediments of the Middle Branch. Allied Chemical once produced Kepone north of where Swann Park is now located. Presumably, sediments of the Middle Branch may be contaminated with this material. The Clean Water Act has resulted in a significant decrease of toxic industrial discharge, and presumably the quality of habor sediments is improving. New contributions of sediments from the watershed which are contaminated with urban runoff pollutants may be of higher quality than the sediments from industries of the past. Studies have shown that the bottom of dwelling organisms of the harbor are more prolific, indicating an improved sediment environment.

Aquatic Environment - The aquatic environment of the Middle Branch is characterized by pollution tolerant species which live in the polluted waters, sediments, and wetlands. The sources of pollution and the lack of comprehensive water quality data since 1971 have already been discussed. The following description of the Middle Branch's acquatic environment is based on that data and on a limited, more recent sampling. Most of the data is from harbor-wide sampling, and so should be used with caution in assessing the Middle Branch.

The three water quality factors are of greatest importance to aquatic environment - are dissolved oxygen, metals contamination, and polluted sediments. Low dissolved oxygen may be a problem in the Middle Branch, particularly in the deeper portions. Recent investigations of the harbor indicate that metals concentrations may also be a problem for aquatic life in the harbor.

A 1971 characterization of the aquatic life of the harbor indicated that the harbor had a large population of fish including menhaden, white perch, herring, and yellow perch. However, there was a

noticeable absence of bottom fishes, probably due to heavily contaminated bottom sediments. In addition, fish showed signs of stress from pollution. The crab population decreases in numbers moving upstream.

Two studies have been performed to investigate the health risks of consuming crabs and fish from Baltimore Harbor. Polychlorinated biphenols and chlordane have been found in crab and fish tissue. Levels of these contaminants in crabs were not found to constitute a human health risk. A warning was recommended for the consumption of eels and channel catfish: "the public should be warned against making these fish a substantial part of their diet. Women of childbearing age, infants and children should be advised against the consumption of (eels and channel catfish)".

The most important factor affecting the in-stream habitat of the Gwynns Falls suffers from the change in hydrology resulting from development in the watershed. Impacts from this development include erosion, sedimentation, rapid flood flows, as well as pollution from urban runoff and sewage. Fish sampling in the Gwynns Falls in 1987 found 27 species of fish including blacknose dace, creek chub, white sucker, and green sunfish. These species represent 41% of those fish which may have historically occurred in the Gwynns Falls.

The Middle Branch contains some of the most extensive tidal wetlands of Baltimore Harbor. Mudflats and emergent vegetation such as cordgrass and cattails support a diversity of waterbirds including seagulls, herons, and egrets at some times of the year. Possum, raccoon, muskrat, reptiles and amphibians also benefit from the wetlands. The Masonville Cove is a particularly important habitat for wintering waterfowl such as black ducks.

Shoreline and Terrestrial Habitat - The entire shoreline of the Middle Branch has been altered throughout the last two centuries. Three areas have experienced the greatest changes in shoreline configuration due to filling. Steep slopes and rubble erosion protection characterize the shores north of the railroad bridge, at the mouth of the Patapsco River where Reedbird Park is located, and at the Masonville dredge disposal site. The remainder of the shoreline has been altered or filled to a lesser extent than these sites, often exhibiting eroded areas and small coves which trap debris from the storm drains.

Two known waste disposal sites are located in the Middle Branch: Reedbird Park east and west of the Patapsco River, and an old Allied Chemical industrial site south of BG&E Spring Gardens. The Reedbird landfills are composed of municipal waste to the west of the river and construction debris to the east. Maryland State Department of the Environment monitors the western site for possible harbor contamination due to leachate. The old Allied site is a toxic waste site with Kepone and has been "capped" to safeguard the public against hazard. The quality of the fill material of the entire shore is unknown and could affect harbor water quality.

Terrestrial Habitat

The entire upland area of the Middle Branch has been disturbed at some point time. Most of the area is now developed, though pockets of secondary natural growth occur, especially along the stream valley. The most extensive natural areas occur at the Reedbird landfills, Masonville dredge disposal site, and along the Gwynns Falls. Bird species include common "edge" species such as mockingbird, bluejay, and robin, wintering birds such as junco, and migrants if they happen to land on their migration. Some of the fields in the area support field

birds such as the ring neck pheasant. Mammals probably include oppossum, raccoon, skunk, rabbits, voles, moles, and rodents. Various reptiles and amphibians can probably be found especially associated with the wetland areas.

Environment of the Gwynns Falls - The terrestrial environment of the Middle and Lower Gwynns Falls ranges from mature woodlands to highly degraded industrial properties. The Middle Gwynns Falls has mature woodlands along much of its length on steep banks, interspersed with industrial and residential land use and two cemeteries. The Lower Gwynns Falls is dominated by industrial land interspersed with areas of open space that has been disturbed in the last 20 years.

A park system containing a significant amount of land borders the Gwynns Falls. The largest parcels are north of the Middle Branch and outside the study limits. Still, these wooded parklands contribute to the habitat value of the lower reach since they are connected through a waterway corridor. The value of the habitat of the Gwynns Falls is increased by the fact that it is linked to other significant habitats along the stream.

Parks within the middle Gwynns Falls include Gwynns Falls Park and Ellicott Drive. The majority of the Gwynns Falls Park and Ellicott Drive remains in a natural condition of mature Oak-Hickory forest. These areas are among the highest quality habitats in the city and unusual in an urban environment.

The Middle Gwynns Falls between Edmundson Avenue and Frederick Road is highly aesthetic in quality including steeply wooded banks and scenic rock outcrops. Just above Frederick Avenue the stream flood-plain broadens which not-coincidentally marks the beginnings of development- to the west are ballfields and to the east is industry.

Below Frederick Avenue the quality of habitat along the stream is significant disturbed. A narrow band of vegetation hugs the stream bank for most of its length with industry encroaching at one or both sides. Some areas have been stabilized with gabions. Significant open space occurs at Carroll Park Golf Course, providing edge habitat to urban species. Open space is also associated with the I-95 right-of-way, where old field and shrub-scrub plant communities provide habitat for field and edge species. This kind of natural habitat is rare in the city. The stream adds significantly to the value of the habitat, though the quality is limited by the isolating affects of the highway and adjoining industries.

The vegetation associated with the Gwynns Falls are members of the Oak-Hickory forest at various stages of succession. Those areas of mature forest are associated with park lands and are dominated by oak, hickory, and tulip poplar on the uplands and box elder, maple, ash, and willow in the bottomlands. Disturbed areas are vegetated with such species as black locust, pawlonia, and mulberry.

The wildlife species which probably live in the area include species which can be supported by the immediate habitat as well as species which depend on Leakin Park for breeding habitat but travel along the corridor for feeding. Common species include raccoon, opossum, gray squirrel, eastern chipmunk, moles, shrews, and rodents, and innumerable "edge" species of birds (i.e. species which typically live at the edge of forests and suburban areas). Uncommon species which have been observed in the area include owls and hawks. Foxes have also been obsered, which are present in most of the natural areas of significant size in the city. A large variety of reptiles and amphibians probably inhabit the middle Gwynns Falls.

Recent Trends in Water Quality and Habitat - Noticeable improvements have occurred in the water quality and habitat of the Middle Branch in the last decade. The Gwynns Falls interceptor was designed to carry all of the excessive sewer flows which were responsible for major overflows in the Gwynns Falls sewershed. Though no data is available to document the water quality improvement, routine monitoring has demonstrated that the occurrence of major overflows is now insignificant. Minor leakages, however, which may have a significant cumulative effect on water quality, have not been addressed. The reduction of major overflows should result in a decrease in bacteria as well as nutrient contributions in the Middle Branch. As these components decrease, dissolved oxygen should increase, improving water quality for habitat.

The numbers of water birds and terrestrial birds in the Middle Branch has increased noticeably in the last decade, perhaps as a result of two factors: conversion of industrial land in the Middle Branch Park area to vegetated open space, and an increase in vegetated tidal wetlands. These observations are a testimony to the fact that we can expect greater wildlife activity as further environmental improvements are made. As the Middle Branch Park matures, its value to wildlife will increase as birds develop a migratory memory for the place and vegetation at the park matures. Wetland plants have been naturally expanding as sediment deposits at the mouth of the Gwynns Falls and the Upper Middle Branch, though efforts to plant new wetland vegetation in the Middle Branch have had limited success. BRESCO will be planting wetland vegetation on their dredge disposal site located just north of the railroad bridge on the western shore of the Middle Branch. Thus,

wetland vegetation can be expected to increase in area if present trends continue.

PARK SYSTEM PLANNING

The Middle Branch has been part of several park plans in the twentieth century. The common challenge for all these plans was to achieve public access to the privately owned and industrially developed waterfront.

The 1904 Olmsted Plan

The Olmsted Brothers were commissioned in 1904 by the Municipal Arts Society to complete a comprehensive plan for the entire Baltimore park system. At that time Swann Park was the only public land on the Middle Branch waterfront or the Gwynns Falls. The Olmsted report made extensive recommendations for developing public access along much of Baltimore's waterfront and stream valleys.

For the Middle Branch area, the consultants recommended purchasing marshes, shoreline, mudflats and upland areas around the mouth of the Patapsco River. Specifically, the following recommendations were made:

- Provide a bathing beach (where Broening Park and South Baltimore General Hospital are presently located.)
- Realign "Long Bridge" (previously connecting Ferry Bar Point to Brooklyn) for access to the present Broening Park, and design a causeway over the Patapsco to Brooklyn.
- "Reclaim" mudflats at the mouth of the Patapsco by creating a lake as a settling basin to trap sediments which are settling in the harbor navigation channel.
- Create a land connection between the Patapsco River Park and Mt. Winans, purchasing lands between the existing electric

car line and waterway (more or less what is now the Rowing Club section of Middle Branch Park).

The plan proposed development of a continuous greenway throughout the Gwynns Falls Valley, specifically:

- Fill the "marshy area" at the mouth of the Gwynns Falls to create park land.
- Purchase a continuous greenway along the stream (specific land areas were mapped averaging in width from 350 to 800 feet.
- Create a parkway link to Druid Hill Park (now the Gwynns Falls Parkway).

The Olmsted Brothers 1926 Plan

The Olmsted Brothers were hired again in 1926 to reassess the recreational needs and opportunities in Baltimore. By this time, the City had purchased much of the area recommended in the 1904 plan. Significant parcels were purchased along the Gwynns Falls, although the lower Gwynns Falls, downstream from Carroll Park, remained in private ownership. Broening Park and Swann Park were the only public lands on the Middle Branch waterfront.

The 1926 plan deleted some areas identified for acquisition in the 1904 plan, and recommended new areas for acquisition. The areas in the Gwynns Falls valley and the Middle Branch which were deleted from the 1904 plan included:

- The lower Gwynns Falls
- Middle Branch connecting link to Winans (now the Rowing Club)
- Patapsco River Park (now Reedbird Park)

While the authors do not explain these deletions, presumably the lands had become developed making them inappropriate for park use and too expensive.

The new recommendations for acquisition in the Gwynns Falls Valley or Middle Branch included:

- Dead Run stream valley (now Leakin Park)
- Powdermill Run (now City-owned)
- Harbor waterfront parcels including: Fort Howard, Fort Smallwood, Swann Creek, Fort Armistead and Black Marsh (Ft. Smallwood and Fort Armistead are now City-owned. Ft. Howard and Black Marsh are owned by the State and Baltimore County.)
- Unidentified surplus land from the Western Maryland Railroad.

Olmsted Brothers 1941 Plan

The Commission on the City Plan hired Olmsted Brothers in 1941 to make recommendations for a City-wide park system. Their recommendations were illustrated on eleven maps which are not available today. As a result, the specifics of their ideas are difficult to decipher. However, several written comments addressed the Middle Branch:

> "Swann Park already exists on the shore of the Middle Branch, and so do two small park areas at the northern end of Hanover Street Bridge...and Broening Park. We do not believe that the investment of money in additional waterside recreational areas on the Middle Branch would be as productive as would the same expenditure in... other places. We recommend that Waterview Avenue be developed as an additional thorough-fare into the City..(which) would have a recreational value. To acquire sufficient level land for a park along this shore would mean the dispossessing of a going business

concern, thus raising the cost of the land...for which equally good park areas could be bought elsewhere."

Olmsted Brothers also expressed concern about the quality and use of existing park land:

"We believe that the present acreage of Baltimore parks is insufficient, and yet a considerable portion of this acreage is now practically unused. The reason for this is, we believe, that the City has not appropriate sufficient funds so that the parks could be properly developed..(and) kept up, so that a tradition and pride in the proper use of parks could be encouraged."

The consultants also warned against the encroachment of traffic in recreation areas, which "may travel for speed and economic convenience instead of for pleasure."

Simonds and Simonds Parks and Recreation Plan, 1964

A Parks and Recreation Plan for Baltimore City was prepared by Simonds and Simonds in 1964. The consultants observed that Baltimore had not responded to the increased emphasis on water-oriented recreation and that the stream valleys and estuary provided unique opportunities.

They proposed establishing a park which would completely encircle the Middle Branch on new land to be created by filling. The Middle Branch Park was designed to be a 300-acre regional park with marina, swimming facilities, amphitheater, aquarium, restaurant, multi-use parking, play fields, and trails. The plan included a trail system and picnic areas along the lower Gwynns Falls linking the Middle Branch to

Gwynns Falls Park. In the years since Simonds and Simonds made their proposal the situation has changed. I-95 was constructed making the realization of the Gwynns Falls trail link difficult. Also, the creation of new land by filling the Middle Branch is not likely to be approved under the present federal and state regulations.

City-wide Bikeway Plan

A City-wide bikeway plan was designed in 1977 as part of a national initiative, "The Unified Transportation Planning Program." The system included bike trails and lanes which extended from the City boundary at I-70, through the Gwynns Falls Valley, around the periphery of the Middle Branch, and connecting with the Inner Harbor and the Patapsco River State Park. Parts of the trail have been constructed in the southern shore of the Middle Branch and in Carroll Park.

1977 Middle Branch Plan

In 1978, the Baltimore City Planning Commission adopted the "Middle Branch Plan" which ambitiously redesigned the open space system of the area. The Plan's objective was to create "Baltimore's largest shoreline park".

At that time, Middle Branch park lands were limited to Swann Park, Broening Park and the mouth of the Gwynns Falls. Additional public land was to be created as part of the landfill underway south of Central Garage. The improvements which resulted from the 1978 plan include:

- Neighborhood recreation facilities at Reedbird Park. Including a multi-purpose field, tennis courts, basketball courts, softball diamond, and fishing pier.
- Ramps and piers at Broening Park.

- Waterview Avenue Shoreline Park with the Water Resources Center and Rowing Club.
- Conversion of 10 acres of junk yards to Waterview West Park (no facilities).
- Improvements to the City-owned Baltimore Yacht Basin.
- Standards for new development at the Waterview Industrial Center to promote an attractive setting.
- Wetlands mitigation for Fort McHenry Tunnel.
- Sewer improvements.
- A new animal shelter with a site plan compatible with the park.

The Plan also made recommendations which have not been realized including:

- A land-swap with CSX where Swann park would be relocated south of the railroad (negotiations dropped by CSX).
- Landscaping at Central Garage landfill (fill still not suitable for planting).
- Easements acquisition, landscaping, and a hiker/biker trail along the CSX property on the north shore of the Middle Branch and BG&E Spring Garden site.
- Completion of the hiker/biker trail system.
- Picnic tables at the animal shelter site.
- A boat launch at the Central Garage (abandoned in favor of expanding boat launches at Broening Park).
- Play fields, picnic pavilion, observation/fishing pier at Waterview Park.
- Play fields, landscaping, children's areas sports fields, parking and connection to County Southwest Park, Patapsco River State Park at Reedbird Park.
- Lookout Park beneath I-95.

Middle Branch Park Today

The Middle Branch Rowing and Water Resources Center is the center of recreational activity in the park. Activities include boating, environmental education, catered events, and neighborhood festivals. Equipment includes 10 canoes, 6 rowing shells, 6 handicapped rowing

catamarans, and environmental education equipment. The facility is open during the week year-round and on the weekends during the summer.

The Rowing Center is regularly used by local rowers. Since rowing is a specialized boating skill requiring training, the general public cannot rent the skulls. There is a program on weekdays to teach children to row the skulls. The general public can rent canoes. However, since there is not enough staff to manage the activity, canoe rental is not publicized. Part of the problem is that the facility makes management of boat rental difficult because boat storage is located in the main building, more than 100 feet from the water.

The Park's main building is a beautiful facility with several deficiencies. The Center's catering function (a revenue-producing activity) and the environmental education program often conflict because they share the same space. For instance, storage is inadequate for moving educational material out of the way for catered events. A snack bar or restaurant is needed to serve park users. Storage for park maintenance equipment is inadequate. The Center needs support facilities for annual rowing events including a watch tower and public viewing area.

Use of Middle Branch Park has increased over the years. Neighborhood festivals, rowing, crabbing and fishing, jogging, biking, and informal play by neighborhood children are the major activities. Additional facilities and marketing could increase the City-wide and regional use of the park. In particular, a restaurant, non-powered boat rental, family picnic facilities, and playing fields would complement the present facilities.

PROBLEMS AND OPPORTUNITIES

MIDDLE BRANCH PARK

- Inadequate parking for park facilities - While parking for the Broening Boat Launch, the Water Resources Center and Rowing Club, and the Vietnam Memorial is adequate for normal use, limited parking for cars with boat trailers coupled with peak use for festivals and memorial events leads to a parking problem during summer weekends.

- Inadequate storage for park equipment - The Water Resources Center/Rowing Club building does not have adequate indoor storage for the park's equipment, especially gasoline powered boats and maintenance equipment.

- Problem property - There is a vacant property, a former dry cleaners, on Potee Street at Waterview Avenue. This site is right on the doorstep of Middle Branch Park and adjacent to the Vietnam Memorial. Because of the prominence of the site and the volume of traffic on the adjacent streets, the site is attractive for commercial development. Specifically, a gas station has been proposed. The Planning Department and the Zoning Board opposed the proposal arguing that a gas station at this location is inappropriate for the park and natural environment. It is likely that without public intervention, the site will continue to sit vacant and be the subject of future development battles.

- Habitat Threatened by development - A 10 acre mature oak wood lot is located south of Waterview Avenue, across from the Rowing Club. This habitat is rare in the Critical Area, uncommon in the entire City, and provides a buffer between industry and residential land use.

- Inadequate Landscaping - Middle Branch Park and Reedbird Park have an inadequate amount of landscaping for both the aesthetic needs of a park as well as habitat needs.

- Middle Branch Moorings - Middle Branch Moorings, a private marina on the Middle Branch, has limited parking. Its owners would like to have a place for overflow parking nearby. The marina experiences considerable difficulty with trash collecting around the piers, boats, and the wetlands area. The operators of the marina are attempting to establish the wetlands as mitigation for an area they filled several years ago to enlarge the marina parking lot.

- Waterview West - Waterview West is an undeveloped area of water-front park land. The site was once a junk yard, but the land has been cleared and covered with clean soil. There are no specific development plans for the parcel. It now is used as a viewing areas for rowing races. A small wooden tower for race officials is the only improvement on the site. The shoreline has both wetland and upland vegetation. The remainder of the site is a weedy field mowed occasionally for rowing events and used as an overflow parking area for events at the Water Resources Center.

- Wetlands- A tidal wetland is located at the cove enclosed by Waterview West and Merit Concrete. This area is frequented by water birds despite the environmental impacts of the concrete batching plant.

WESTPORT

- Concrete Batching Plant - On the waterfront at the intersection of Waterview Avenue and Kloman Street is a concrete batching plant, a facility where concrete is mixed and loaded into trucks. The plant's dust, runoff, excess concrete and truck traffic are a chronic nuisance for the environment and the adjacent neighborhood. Although the plant has been cited a number of times for pollution and illegal fill, the activities continue.

- Waterfront industries and public access - The remainder of the Westport waterfront is occupied by two large facilities - the Carr-Lowery Glass Company, a glass manufacturer, and the Baltimore Gas and Electric Westport Power Plant, an oil-fired electric generator used only for peak loads. Since the shoreline along both facilities is highly developed, public access to the waterfront cannot be allowed as long as the plants operate. While Baltimore Gas and Electric is beginning to study the potential for redevelopment of it s Westport properties, it will be several years before any changes that place.

- The Young American Ballpark - Just south of I-95 the Young American softball field is an underutilized facility isolated from the

neighborhood it was intended to serve. The roar of the interstate overhead detracts from the casual use of the site as a passive park.

- The Light Rail Line - The ballfield will be used as a construction staging area for the light rail project. The light rail line itself will eventually cross the ball field site. A light rail stop will be built farther south in Westport at the eastern end of Kent Street above Kloman Street. The entire neighborhood including the Westport Homes and Mt. Winans public housing projects will be with in walking distance which should promote heavy ridership. The location of the station could create a focale point in an area to which the neighborhood now turns its back. This could be part of strengthening the neighborhoods ties to the Middle Branch.

- Western R.R. Bridge - The railroad line and bridge crossing the Middle Branch between Westport and Swann Park will be abandoned. This will allow the light rail to cross the line at grade. The unused bridge is likely to remain.

- New wetlands and buffer plantings - BRESCO is establishing a new vegetated wetland between I-95 and the railroad bridge. The light rail project will do planting in the buffer between BRESCO and Baltimore Gas and Electric as an offset for the Critical Area impacts.

- Absence of shoreline vegetation - The industries of Westport have no upland or wetland vegetation along their shoreline.

- Zoning - The M-3, heavy industrial, zoning of the Westport shoreline potentially allows land uses which conflict with water quality objectives.

UPPER MIDDLE BRANCH

- BRESCO - The BRESCO plant is a trash incinerator which uses the heat from incineration to generate electricity and steam. The plant which is located north of I-95 occupies a large part of the north shore of the mouth of the Gwynns Falls. While the shoreline is well landscaped, the location of the plant's water intake and outfall structures makes it unlikely that BRESCO will permit public access to the waterfront.

- New natural wetlands - The finest tidal wetlands and mud flats of Baltimore Harbor arch north and east of the BRESCO plant as sediments accumulate.

- Drainage outfalls - The west side of the Upper Middle Branch is deeply indented by five major drainage ways, formerly streams, that drain the western side of the city. The channels for the outfalls breakup the shoreline making a continuous public path along the waterfront difficult to provide.

- Prime habitat area - The natural wetlands along the west shore make the area the most desirable for water birds. The remains of wooden barges, old tires, and other debris provide perches for water birds searching for prey. The shoreline vegetation is the most natural along the Middle Branch with overgrown vacant lots and trees along the water's edge. The CSX properties and the land belonging to Maryland Chemical are prime urban wildlife habitat. The 100-foot buffer on these lots is proposed to be designated as Critical Area Habitat Protection Areas.

- Stadium-related redevelopment - The vacant lots and and industrial buildings on the west side of the Upper Middle Branch are likely targets for redevelopment. The area will receive new exposure due to the stadium. Specifically, Warner Street will be a major route to the stadium parking lot. So far, the only activity has been the sale of some significant parcels.

- The northern shoreline - The City Animal Shelter occupies a small site on Stockholm Street and maintains a natural shoreline and picnic area. The elevated portion of the light rail line will cross a tidal inlet and small stream just to the east of the Shelter. Farther east between the stream and I-95 is Form Services Company, a new printing business that has plans for expansion.

- The Spring Gardens shoreline - Baltimore Gas and Electric Company owns and occupies the eastern shore of the Upper Middle Branch. Most of the site is used for a gas storage, liquification

and distribution facility. The demolition of tanks on the north side of the facility created a site for redevelopment. Due to reorganization of the plant, much of the shoreline area is no longer essential for operation. Baltimore Gas and Electric is preparing a plan to further reorganize the site and comply with the Critical Area regulations by planting the buffer area.

- Zoning - The M-3, heavy industrial, zoning along the Upper Middle Branch potentially allows land uses which conflict with water quality objectives.

SWANN PARK/CENTRAL GARAGE

- Kepone contamination - The land under the east end of I-95 was once occupied by Allied Chemical and is contaminated with Kepone. The area was capped with asphalt when the interstate was constructed. The capped area cannot be disturbed.

- Swann Park - South of the Kepone site is Swann Park. This city park has several softball fields and a clubhouse. These fields are heavily used by city-wide leagues during the spring and summer. Southern High School uses the fields for sports practice during the school year.

- New wetlands - Along the shoreline of Swann Park, new vegetated wetlands are proposed as mitigation for the fill at the Belt's Wharf project in Fells Point.

- Western R.R. Bridge - The railroad line and bridge across the Middle Branch between Swann Park and Westport will be abandoned. The bridge structure will be retained. A portion of the railroad line up to the bridge will remain active. The line is required for switching trains to enter the Sun Paper's printing plant on Port Covington.

- CSX land - South of line leading to the railroad bridge is a large parcel of land owned by CSX. The land is an open lot used for lumber storage. The land is likely to be more intensely developed in the future.

- Central Garage - Between the CSX land and Hanover Street is the city's Central Garage, a facility for the repair and storage of all types of city-owned equipment. A fill project completed in the early eighties expanded the garage site and provided parking space along the shoreline. The site was filled with rubble and dredged material. It may take more treatment before the land is suitable for planting.

- Public access along the shoreline - There is plenty of room adjacent to the Central Garage for public access to the waterfront. It is possible to extend the public path along the shore line eastward under the Hanover Street Bridge to the City-owned Baltimore Yacht Basin marina. From the Yacht Basin, public access can return to the public street system serving Port Covington. It may be necessary to secure the Yacht Basin from public access at night.

- Public access around Locke Insulator - The Locke Insulator plant located next to the marina now blocks continuous public access to the shoreline. Locke has applied for a permit to fill in more of the water. The permit has not been granted. As Critical Area mitigation for proposed fill, Locke would like to expand a previous mitigation project on the Patapsco River in Middle Branch Park. The city has asked that public access be provided around the plant in exchange for using park land for mitigation.

- Public access to the Port Covington shoreline - The 140 acre Port Covington business park east and north of Locke Insulators will have ample green space along its shore. Ferry Bar Park will be expanded, and public access will extend through the entire Buffer area.

- Lack of Vegetation - The entire shoreline has only sparse upland vegetation. Wetlands planted to partially initigate for the Central Garage Fill have had limited success.

- New Wetlands - Two areas are naturally accumulating sediments: Swann Park and the CSX property, affording a future opportunity for wetland vegetation.

LOWER GWYNNS FALLS

- Intensely developed shoreline - Industrial uses crowd the south shore of the stream between Annapolis Road and the Middle Branch. The Interstate highway overhead has changed the stream's course

and encumbered its northern shore. BRESCO also occupies the northern shore.

- Undeveloped shoreline with good habitat value - West of Annapolis Road between Monroe Street and the Flanigan asphalt plant, vacant lots owned by CSX are on both sides of the stream. The south side of the stream is virtually undevelopable due to its location in the floodplain. The north side is a large old field providing habitat for birds, reptiles and small mammals. A small trucking company occupies part of this parcel on the north side of the stream.

- Flood protection dike expansion - Heading west, the remainder of the north side of the stream is occupied by the embankment for I-95 and a flood protection dike built by the City to protect the land north of the dike. The Army Corps of Engineers proposes to raise the height of the dike to provide protection for a 100-year flood.

- Industrial uses along the stream - Most of the south side of the stream between Annapolis Road and Washington Boulevard is industrially used. Many of the uses encroach on the stream. Moving west along the stream from Annapolis Road is the Flanigan Company, a concrete batching plant and asphalt recycler. Next is an active CSX line which crosses the stream. Adjacent to the railroad is a Southgate Industrial Park which is planned to be a multi-tenant industrial redevelopment of the old Maryland Glass factory. This project will comply with Critical Area and floodplain

regulations. Further east are small auto repair shops and junk yards which occupy the land right up to the steam's edge.

- o City-owned floodway land - On the south side of the stream below Washington Boulevard, the City purchased a large area of low-lying land under the floodway acquisition program. All the structures have been removed from the land although the streets remain.

- o City-owned highway land and bike path - The north side of the stream between the CSX line and Washington Boulevard was purchased for the right-of-way for I-95. A bike path was built along with the construction of the elevated highway. Immediately north of Washington Boulevard the stream runs along the Carroll Park golf course.

MIDDLE GWYNNS FALLS

- o Industrial runoff - Industries along the Gwynns Falls may be in violation of State water quality regulations for point source pollution or runoff.

- o Industrial zoning - Except for Carroll Park golf course, the land on either side of the Gwynns Falls from Washington Boulevard to Wilkens Avenue is industrially zoned. Most of the land including the Crossroads Industrial Park is zoned M-2, general industrial. United Iron and Metal property, a large scrap metal yard, is zoned M-3, heavy industrial. M-3 zoning and the uses it allows are potentially incompatible with the aesthetic and

environmental goals of the greenway. Some M-2 uses also may be incompatible.

- Industrial encroachment on the stream - Some stream side land uses encroach too closely to the stream to adequately buffer the stream for water quality and habitat.

- An important wood lot - The land north and west of the Genstar quarry is an important wooded link in the greenway system. It may be threatened by development at some point in the future.

- Conservation opportunities - There are two small parcels owned by CSX adjacent to Gwynns Falls Park. While these isolated parcels are unlikely to be developed, it is important to protect their natural features, for instance, by means of a conservation easement.

- Limited access to the stream for recreation - The locations where recreational access to the Gwynns Falls is possible are limited. Access at Gwynns Falls Park may be feasible, but the steep topography in the wooded area would require sensitive grading and construction. For use by residents city-wide, this kind of recreational opportunity probably is best suited to Leakin Park. However, trails could be used by neighborhood residents and the athletic program of Southwestern High School (i.e., cross-country training).

- Bikeway - Several barriers exist which prevent a continuous bikeway link between Middle Branch and Leakin Park. The most practical alternative is to use existing roadways and pathway to create this link. A continuous stream side trail is impossible due to existing land use and the steep topography of the area. A bikeway which depends too heavily on roadways may have a limited appeal to bicyclists.

- Ellicot Drive - Ellicot Drive along the Gwynns Falls is very pleasant for biking and hiking. However, the roadway is uncomfortably narrow to share with automobiles and trucks.

RECOMMENDATIONS

WATER QUALITY MANAGEMENT AND HABITAT ENHANCEMENT

Planning for water quality and habitat enhancement in the Middle Branch should be performed to support the uses planned for the area including:

- Fishing
- Crabbing
- Fish and wildlife habitat for feeding and limited breeding
- Limited recreational water contact (i.e., no swimming)
- Viewing the harbor from adjacent land uses
- Receiving industrial discharges

According to the limited data available, the following improvements need to be made to meet the criteria necessary to support the desired uses of the Middle Branch and Gwynns Falls (see EPA, 1987).

- Reduce the bacteriological level
- Increase the dissolved oxygen
- Decrease the nutrient contributions
- Decrease the floating debris
- Improve the bottom sediment quality (physical and chemical)
- Increase the amount of natural shoreline and shoreline vegetation
- Reduce water column metals

Figure 8A - Recommendations

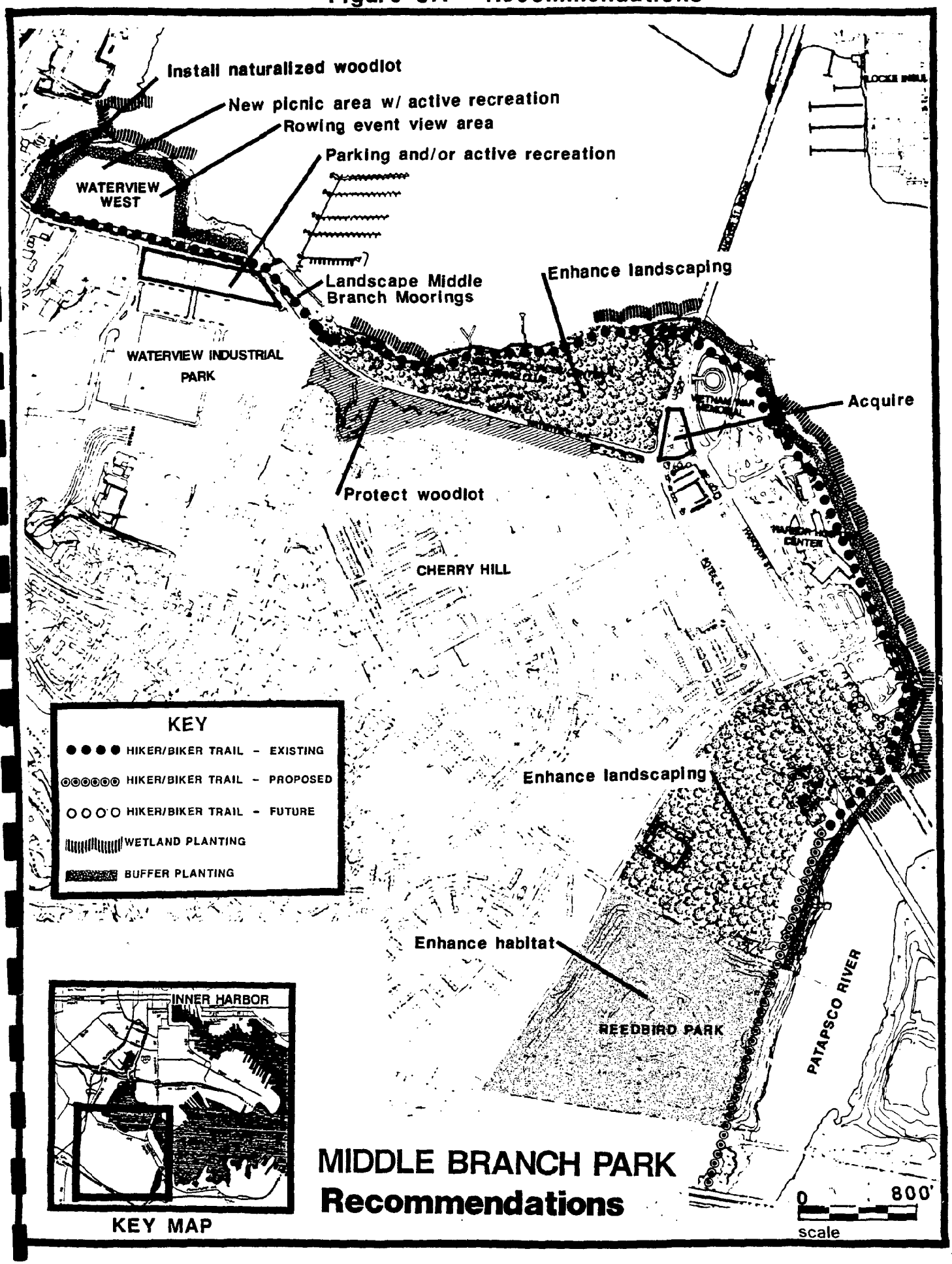


FIGURE 8B - Recommendations

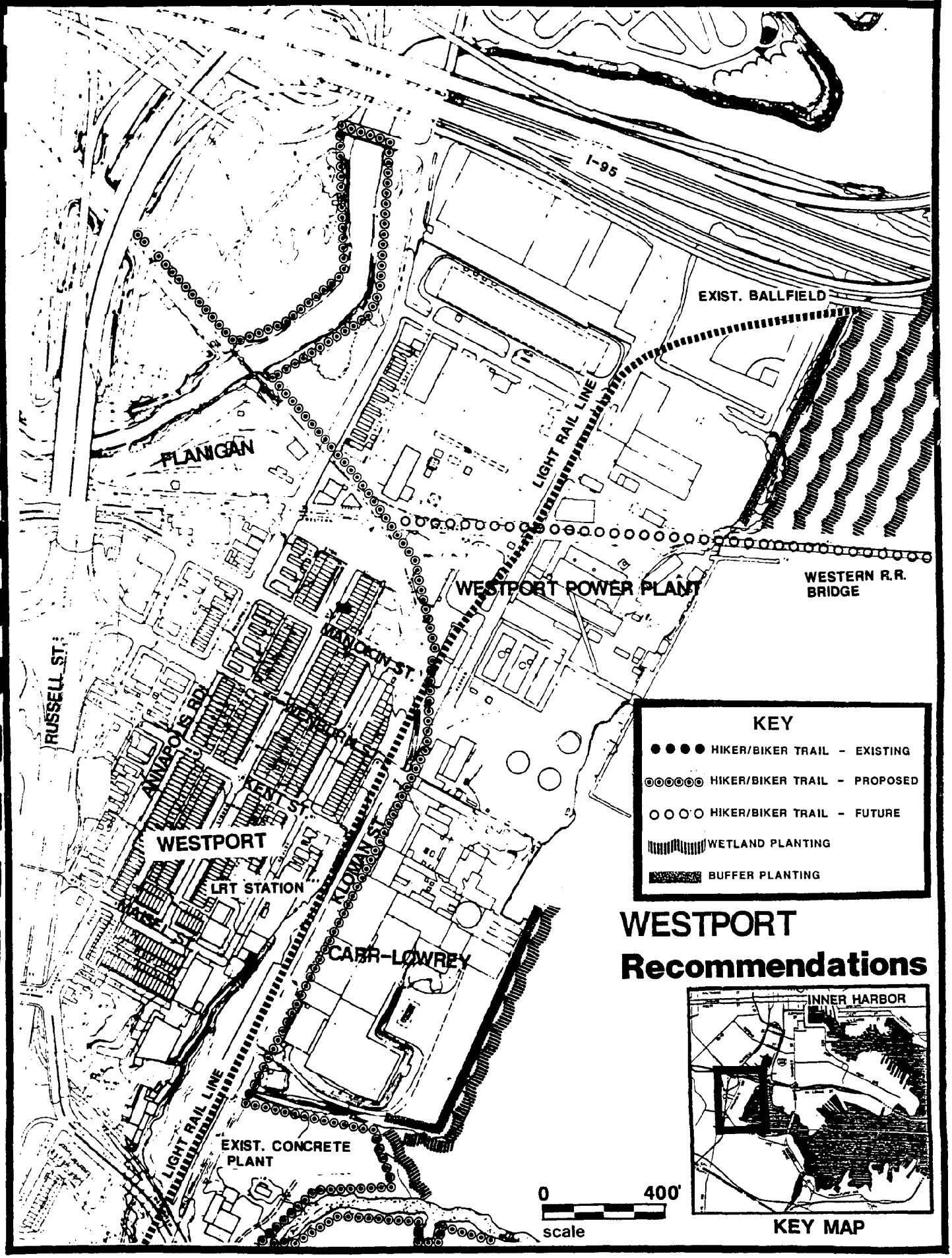
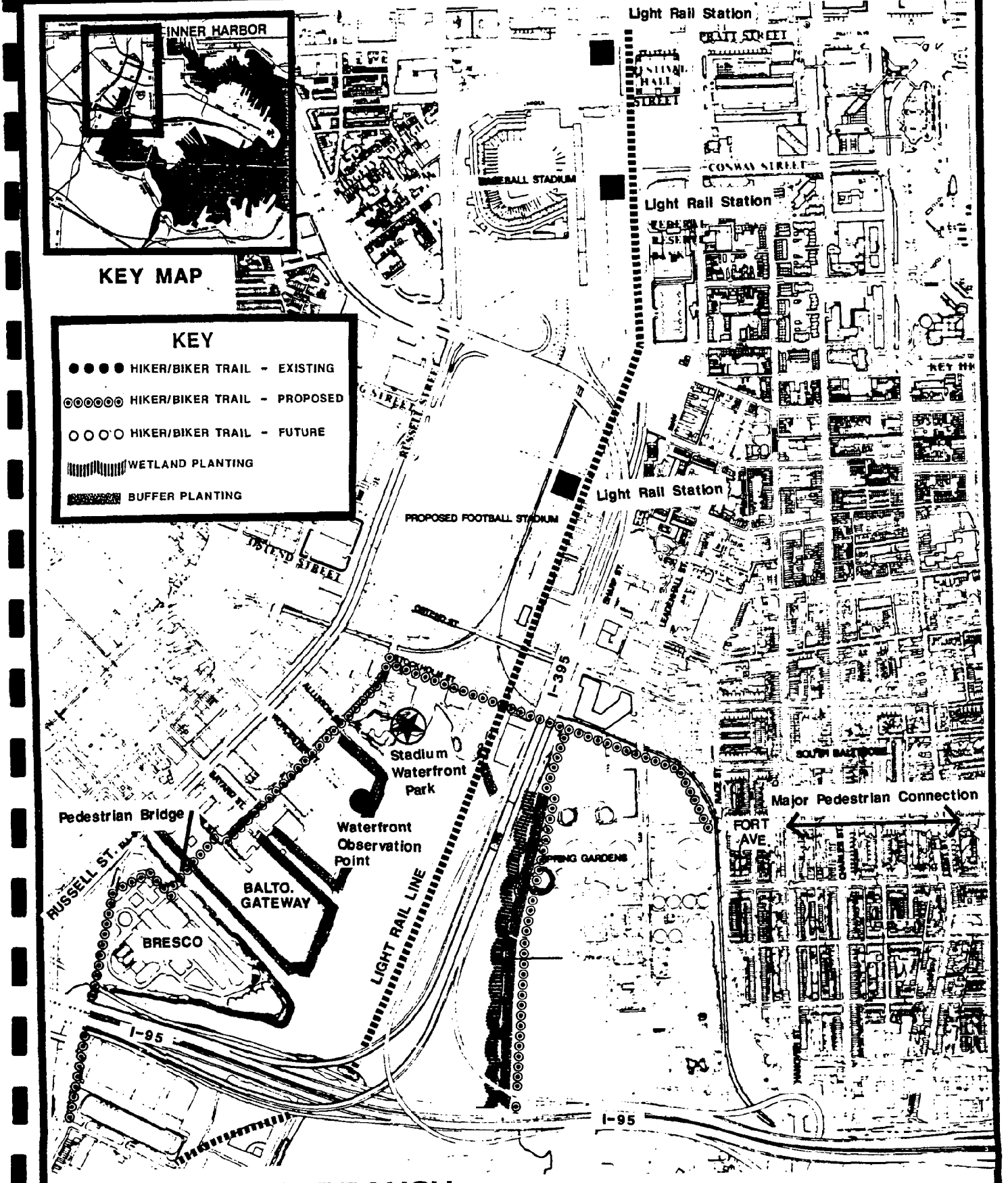


FIGURE 8C - Recommendations



UPPER MIDDLE BRANCH
Recommendations

FIGURE 8D - Recommendations

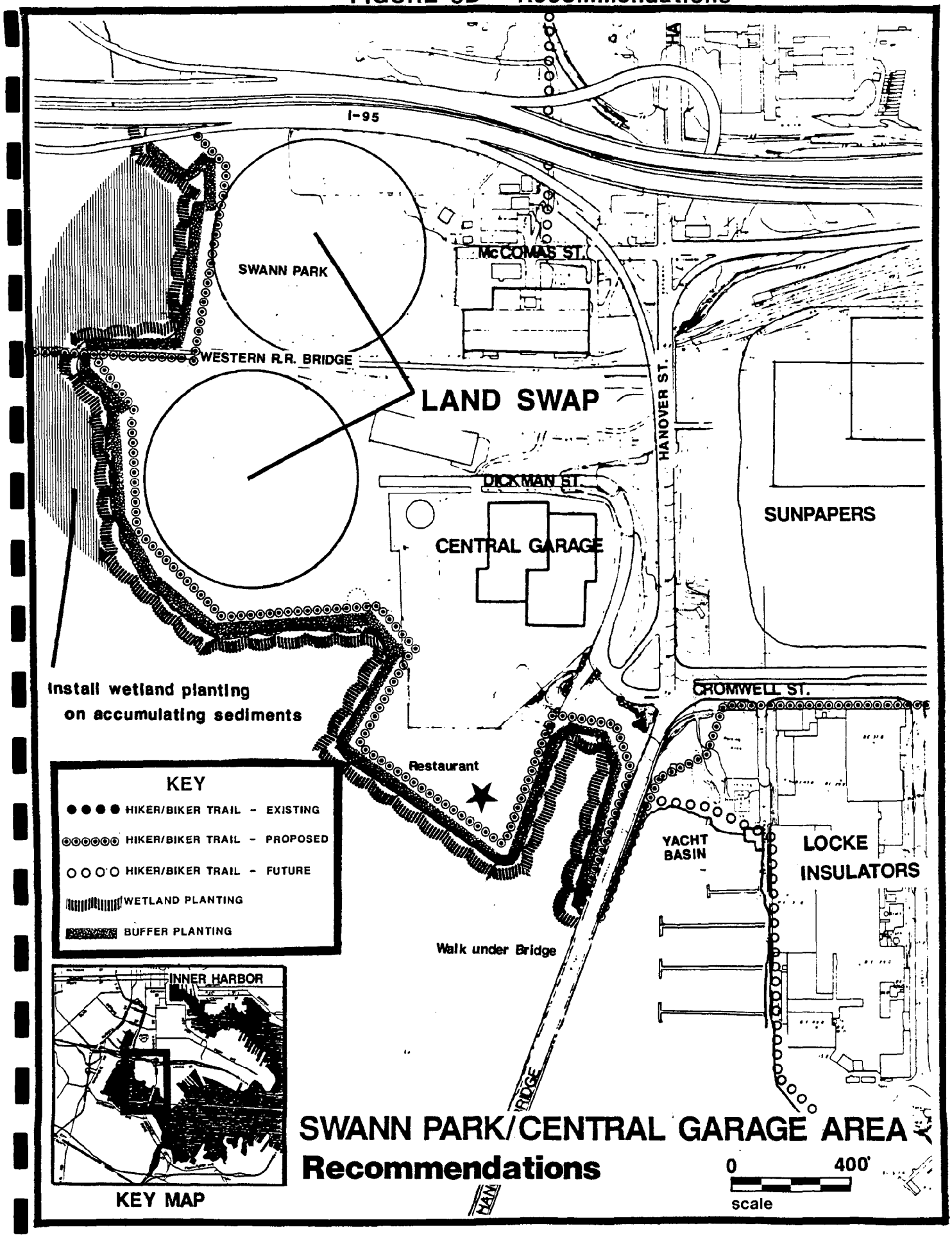


FIGURE 8E - Recommendations

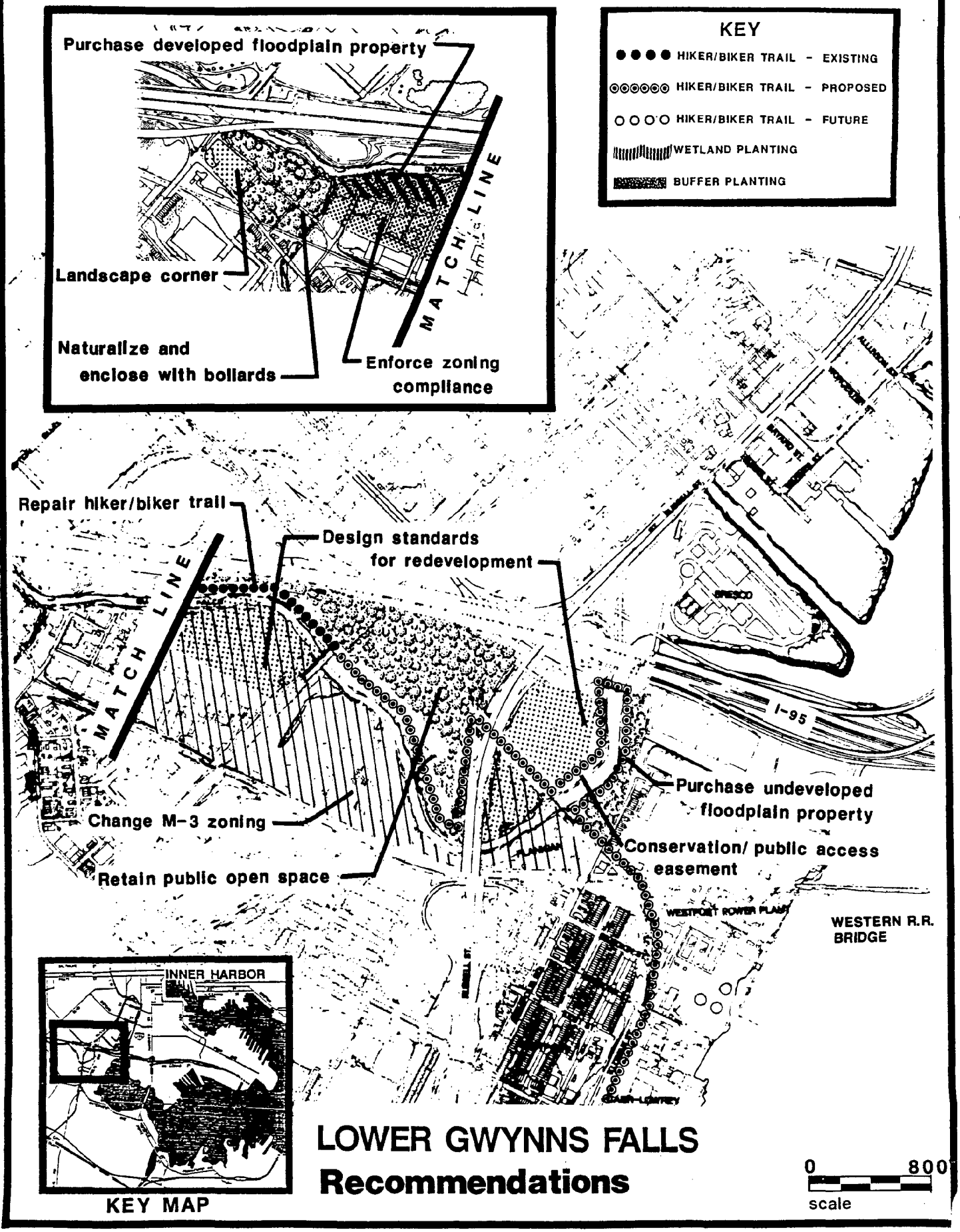
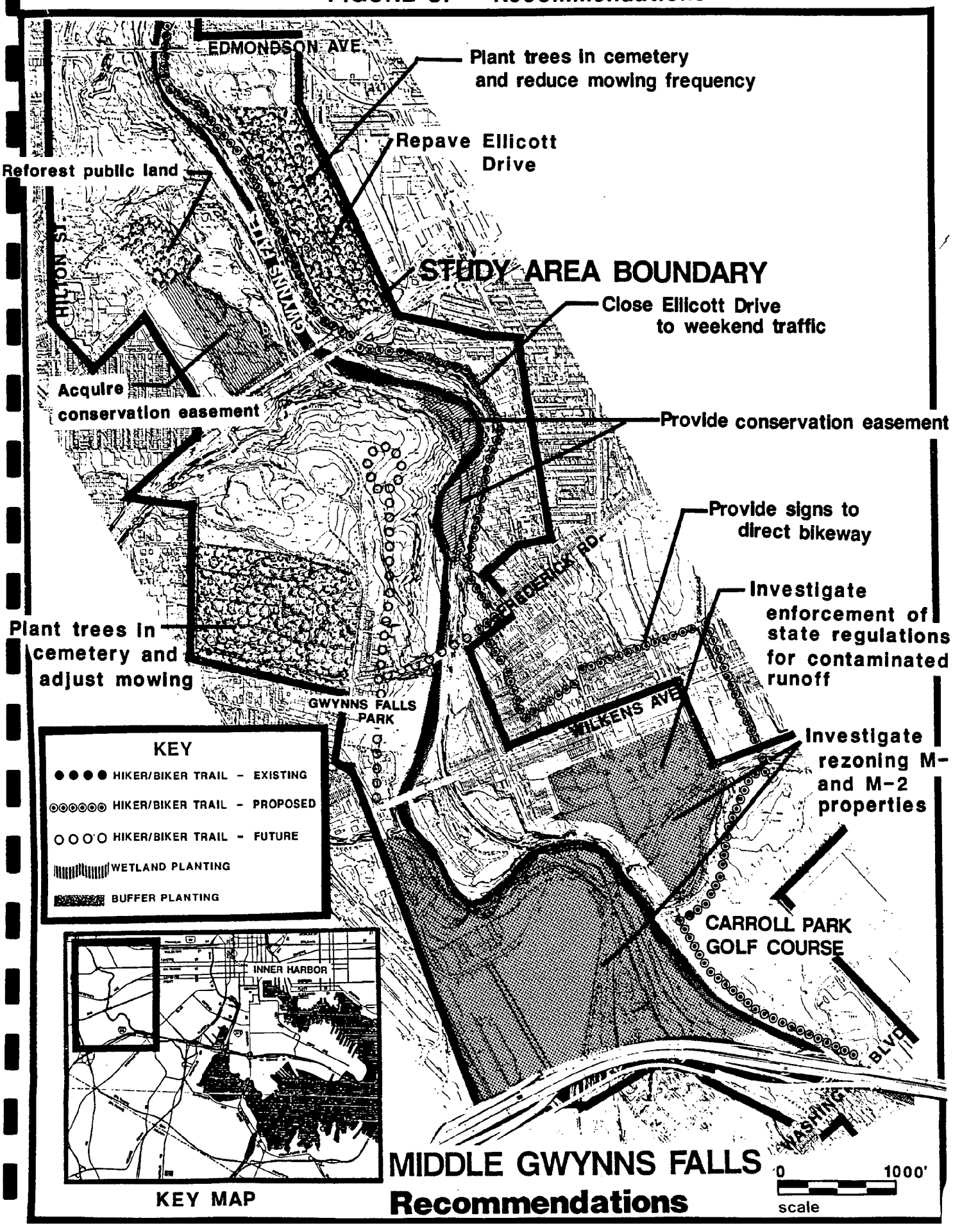


FIGURE 8F - Recommendations



Water quality in the Middle Branch can be maintained and improved through the enforcement of existing programs and through the implementation of additional measures:

Existing programs

- Enforce the Critical Area requirement for new development to reduce runoff pollutants by 10%.
- Maintain a natural buffer along the waterfront where feasible by enforcing the Critical Area Habitat Protection Plan and providing incentives to reclaim developed properties.
- Continue to require new development throughout the Gwynns Falls watershed to improve water quality through storm water management.
- Continue to retrofit existing NPDES permits and ensure regulated "good housekeeping" measures on industrial sites.
- Continue to educate the public about the impacts that trash in the watershed has on the harbor.

Recommended programs

- Investigate the design and installation of mechanism to remove trash from storm sewer outfalls and to regularly remove trash from the harbor.
- Prepare a long-range strategy to eliminate the contributions of sewage from the Gwynns Falls Watershed, including funding sources.
- Investigate the feasibility of M-3 areas along the waterfront and Gwynns Falls to a zone with less negative impacts on water quality.
- Develop performance controls on water-side development city-wide which protect water quality.
- Gather water quality data: Dissolved oxygen, fecal coliform, and toxics.
- If dissolved oxygen is demonstrated to still be deficient in the Middle Branch, consider restoration measures such as aeration devices.
- Examine the merits and feasibility of methods for restoring the sediments quality such as "bottom sealing."
- Increase the amount of wetland and terrestrial vegetation in the area.

- o Install a minimum 100-foot vegetated buffer where feasible along the water.
- o Increase the amount of vegetated open space and provide vegetated linkage between such areas.
- o Allow vegetated areas to naturalize where feasible.
- o Maintain some vegetated areas as old field or shrub-scrub areas.
- o Create non-tidal wetlands.
- o Provide vegetation which has food and cover value to wildlife.

MIDDLE BRANCH PARK

Recreation

- o Create a new waterfront group picnic area on Waterview West.

  Featuring:

  - * enhanced trail system with bike, nature and/or fitness trails.
  - * picnic pavilions.
  - * Access to recreational boating at Middle Branch Moorings.
  - * small eating facilities.
  - * rowing regatta viewing area.
  - * festival parking.

- o Acquire the lot at Potee Street and Waterview Avenue to add to Middle Branch Park.

- o Landscape the area along Waterview Avenue in front of Middle Branch Moorings.

- o Enhance landscaping in all of Middle Branch Park.

- Develop the land between Zamoiski's Industrial Park and Waterview Avenue for parking and active recreational use.

Public Access

- Create a system of waterfront trails on Waterview West.

- Extend the trail to the concrete batching site in Westport. Include a waterfront portion of the trail.

- Extend the through the old landfill and through the buffer across Patapsco Avenue to connect with southwest area park in Baltimore County.

Environment

- Increase the landscaped and naturalized areas in both the Middle Branch and Reedbird Parks.

- Enhance the habitat of the old Cherry Hill landfill portion of Reedbird Park. The site is an old field habitat which could be improved by grasses and other plants of wildlife value as well as clusters of trees and shrubs.

- Protect 10 acre wooded lot located on the south side of Waterview Avenue across from the rowing club. The mature oak stand on the lot is an uncommon habitat in the Critical Area and should be preserved as a buffer between developed land and the waterfront.

- Create a naturalized wood lot on part of the Waterview West portion of Middle Branch Park.

- Increase the vegetated edge at the water at Waterview West to increase the value of the adjoining wetland.

WESTPORT

Recreation

- Investigate a land swap, trading the ballfields for the concrete batching plant site.

- Build multi-use field on concrete batching site. Make site part of Middle Branch Park.

Public Access

- Open a public route starting at the proposed bike/pedestrian trail on the Waterview West site continuing through the concrete batching plant site, then along the railroad right-of-way next to Kloman Street.

- Create a trail along the north side of the railroad right-of-way between Kloman Street and Annapolis Road.

- Use the Westport LRT station to create a community focus point.

- Study the possibility of opening the closed Western Maryland RR bridge to public access.

Environment

- Relocate the concrete batching plant. This is necessary to end the continuing degradation of the water's edge and wetlands, to eliminate the threat to water quality from concrete dust, and to remove a use which is a nuisance to the neighborhood, the park, and the adjoining industries.

- Establish a naturalized buffer between the concrete batching plant site and the adjacent wetland.

- Continue to work with Carr-Lowrey on the company's plans to improve the plant's waterfront. Naturalized grasses, trees, and shrubs will be planted on a low berm in Spring of 1990.

- Investigate the construction of a ledge beneath the water to allow wetland vegetation to be introduced along the Carr Lowrey and Westport Power Plant shoreline. The grade beneath the water's edge along these properties falls rapidly to depths too deep for wetland grasses.

- Continue to support planned improvements to the natural shoreline. Such as planting wetlands and buffers as mitigation.

- Establish water quality and other environmental criteria to guide the private sector's planning for the potential redevelopment of the Westport Power Plant.

UPPER MIDDLE BRANCH

Recreation

- Create a point of waterfront recreation area for stadium users and South Baltimore residents. The area should include:
  - * a waterfront passive park and picnic area,
  - * a signature structure or sculpture to symbolically mark the entrance to the stadium area, and
  - * observation points, educational signs, and a nature walk.

Public Access

- Establish a connection between the stadium/Inner Harbor and the Greenway via Warner Street.

- Encourage waterfront observation points as part of development on Warner Street.

- Investigate the construction of a path from Warner Street across the Merritt property to a pedestrian bridge across the Bush Street outfall.

- Construct a pedestrian path along the south side of the railroad right-of-way connecting Stockholm Street, Leadenhall Street and Fort Avenue.

- Establish a waterfront pedestrian path along BG&E's land from the end of Stockholm Street to Swann Park.

Environment

- Investigate rezoning the M-3, heavy industrial, zoned properties within the Critical Area's 100 foot buffer to a less intense industrial zoning category more compatible with water quality and other objectives of the City's Habitat Protection Plan.

- Require the reclamation of the shoreline and establishment of a buffer as part of the redevelopment of the Merritt property.

- Work with BG&E to reclaim the Spring Garden shoreline and to establish a vegetated buffer along the property's waterfront.

SWANN PARK/CENTRAL GARAGE

Recreation

- Investigate a land swap with CSX, trading Swann Park for the industrial lot between Swann Park and Central Garage, building new ball fields on the industrial lot.

- Investigate development of a commercial recreation use such as a bowling alley or ice rink.

- Restore natural shoreline buffer for passive recreation.

- Facilities development of a restaurant/crab house on waterfront near Central Garage.

Public Access

- Create a waterfront trail between Swann Park and Port Covington.
  - * construct a waterfront path along the private and city-owned land from Swann Park to the Hanover Street bridge.
  - * construct a path under the Hanover Street bridge.
  - * develop a path across the Yacht Basin property which connects the tail to Cromwell Street. Eventually, a connection across the Yacht Basin to the Locke Insulator property may be necessary.
  - * investigate the construction of a waterfront trail around the Locke Insulator property as part of the company's proposal expand by filling.
- Plan for auto access to the development parcels in the area.
- Create a pathway connection from Race Street through to McComas Street. Investigate the establishment of a roadway to accommodate vehicles as well.
- Investigate the possiblity of opening the closed Western RR bridge to public access.

Environment

- Establish a vegetated buffer throughout the area. The design of the buffer should balance wood lots with landscaped areas allowing visual access to the water.

- Monitor the two areas which are naturally accumulating sediments - Swann Park and the CSX property adjacent to the railroad bridge. The areas should be planted with vegetation when the elevation reaches the proper level for wetland grasses or raised and planted as part of mitigation for fill projects.

LOWER GWYNNS FALLS

Recreation

- Enhance the existing trail with educational signs and a directory.

- Create a passive recreation area on floodplain properties.

- Prevent dumping in public access and recreation areas.

Public Access

- Create a trail along the south side of the Gwynns Falls north to Monroe Street, across Monroe Street, and along the north side of the Gwynns Falls to Carroll Park.

- Open a public path along the RR right-of-way between Carroll Park and Leakin Parks.

- Provide pathways to the stream.

Environment

Public Open Space

- Retain all public open space as undeveloped land.

- Remove unnecessary roads in the floodplain acquisition area including portions of Maisel, Carroll and Bremen Streets.

- Plant vegetation of value to wildlife using offset funds.

- Naturalize the areas at the southwest end of the area and provide bollards to discourage dumping. Provide a landscaped and mowed transition at the road edge.

- Place a fence or bollards along the north side of the stream to discourage dumping.

Private Land in the Floodplain

- Investigate the possibility of rezoning properties from M-3, heavy industrial, to an industrial category more compatible with the water quality and other environmental objectives.

- Purchase developed parcels in the floodplain where possible, offering a life-tenancy to owners wishing to retain use of the property.

- Purchase undeveloped parcels in the floodplain where possible.

- Investigate the compliance of existing land uses with the zoning code. Where necessary, enforce the zoning code using the enforcement as a way to require "good housekeeping" practices.

MIDDLE GWYNNS FALLS

Zoning and Land Use

- Establish a 50-foot buffer for new construction and design guidelines for development.

- Work with the Maryland Department of the Environment to explore enforcement of State regulations on industrial or oil-contaminated run-off.

Public Access and Recreation

- Provide a conservation and public access easement on parcels along the stream.

- Improve neighborhood access points to the greenway.

- Investigate access and trail potential at Gwynns Falls Park.

- Study the establishment of bikeway from Carroll Park to Edmondson Avenue. The expense, feasibility and utilization of the bikeway must be evaluated. As part of the Greenway Study, a route for the

bikeway was established in concept. This route raised the following issues for study:

1. Repaving the existing pathway in Carroll Park
2. Providing a railroad crossing at Bentalou Street
3. Extending the bikeway through neighborhood using existing street system and signage: Ashton, St. Benedict, East Lynne.
4. Continuing the bikeway along Ellicott Drive
5. Repaving Ellicott Drive north of Baltimore Street. This section of the Bikeway will link to Franklintown Road in Leakin Park.
6. Providing signs at Frederick Avenue to direct bicyclists across the stream to Southwestern High School Track facility.
7. Assessing the potential users for the bikeway system by interviewing the biking community.
8. Providing parking for 10 vehicles at the intersection of Frederick Avenue and Ellicott Drive.
9. Close Ellicott Drive to traffic on the weekends to create a safe hiking/biking environment.
10. Providing a "warm-up" station at the intersection of Ellicott Drive and Frederick Avenue.

Environment

- Investigate Genstar site for forest link to adjacent publicly-owned wood lots.

- Plant trees in Cemeteries and adjust mowing practices to allow for wildlife.

- Check NPDES permits for all industries along the greenway which may need to have them.